

MAY 30 2007

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TO: Commissioner for Patents  
Attn: Examiner A.Phi Dieu Tran  
Patent Examining Corps  
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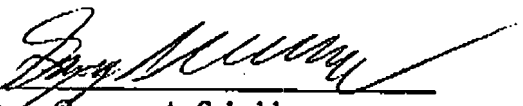
FROM: Gregory A. Sebald

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TELEPHONE: 612.336.4728USPTO Centralized Facsimile No.: **1-571 273 8300** Total pages, including cover letter: **78**.

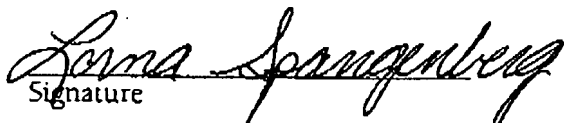
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Title of Document Transmitted: **Appellant's Brief on Appeal with Appendices.**Applicant: **BULLINGER**  
Serial No.: **10/697,7788**  
Filed: **October 30, 2003**  
Group Art Unit: **3536**Docket No.: **10226.0010US11**  
Confirmation No.: **1146**  
Customer No.: **23552**

Please charge our Deposit Account No. 13-2725 in the amount of \$250.00 (Fee Code 2402) to cover the required extension fee for a large entity. Please consider this a Petition for Extension of Time for the sufficient number of months to enter these papers. Please charge any additional fees or credit any overpayment to Deposit Account No. 13-2725.

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S/N 10/697,788

PATENTIN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Michael J. BULLINGER	Examiner:	Phi Dieu Tran A
Serial No.:	10/697,788	Group Art Unit:	3637
Filed:	October 30, 2003	Docket No.:	10226.0010US11
Title:	GUTTER AND COVER SYSTEM		

CERTIFICATE UNDER 37 CFR 1.6(d):

I hereby certify that this paper is being transmitted by facsimile to the U.S. Patent and Trademark Office on May 30, 2007.

By: *Lorna Spangenberg*  
Name: *Lorna Spangenberg*APPELLANT'S BRIEF ON APPEAL

Mail Stop APPEAL BRIEF-PATENTS  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

**23552**  
PATENT TRADEMARK OFFICE

Sir:

This Brief is presented in support of the Notice of Appeal filed November 30, 2006, from the final rejection of claims 8-25 and 28-29 of the above-identified application, as set forth in the Final Office Action mailed May 30, 2006.

Please charge Deposit Account No. 13-2725 in the amount of \$250.00 to cover the required fee for a small entity.

An oral hearing is requested. A separate request for oral hearing with the appropriate fee will be filed within two months of the Examiner's Answer.

05/31/2007 CNGUYEN2 00000081 132725 10697788

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**I. REAL PARTY OF INTEREST**

The real party of interest is Eastside Machine Company, Inc. by way of assignment recorded on March 11, 2003 at Reel 013823 and Frame 0375.

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## **II. RELATED APPEALS AND INTERFERENCES**

There are no related Appeals and Interferences.

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### **III. STATUS OF CLAIMS**

Claims 8-25 and 28-29 are pending. Claims 8-25 and 28-29 have been rejected and are the subject of the appeal. All pending claims are listed in the claims appendix that follows.

Claim 10 stands rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 8, 10-11 and 13-21 stand rejected under 35 U.S.C. §102 (b) as being anticipated by Knudson, U.S. Patent No. 5,845,435.

Claims 9, 22, 24 and 28-29 stand rejected under 35 U.S.C. §103 (a) as being unpatentable over Knudson, U.S. Patent No. 5,845,435 in view of Manoogian Jr., U.S. Patent No. 5,072,551.

Claim 12 stands rejected under 35 U.S.C. §103 (a) as being unpatentable over Knudson, U.S. Patent No. 5,845,435 in view of Manoogian Jr., U.S. Patent No. 5,072,551.

Claims 23 and 25 stand rejected under 35 U.S.C. §103 (a) as being unpatentable over Knudson, U.S. Patent No. 5,845,435 in view of Manoogian Jr., U.S. Patent No. 5,072,551.

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#### **IV. STATUS OF AMENDMENTS**

An amendment has not been filed after the Final Office Action.

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## **V. SUMMARY OF THE CLAIMED SUBJECT MATTER**

A summary of the claimed invention follows. The summary includes references to an embodiment disclosed in the specification. Independent claim 8 is directed to a seamless gutter and cover system (110) shown in Figure 8. A gutter (124) formed from a first coil of material has a front face (119), a bottom (115), and a rear portion (117) extending upward to a top segment. A cover (122) is formed from a second coil of material. The cover extends over the gutter (124) and has a debris separation portion (112) extending above the front face of the gutter, and a lip portion (114) extending upward and wrapping over the top segment of the gutter (124). The lip portion (114) and the top segment of the gutter (124) are pressed together along their length to form an integral gutter and cover assembly (110). See page 7, line 16 through page 8, line 2.

Independent claim 22 is directed to a seamless gutter and cover system (110) as shown in Figure 8. A gutter (124) has a front face (119) including a curving front portion (120) extending rearward and downward, a bottom (115), and a rear portion (117) extending upward to a top segment. An integral cover (122) extends over the gutter (124), having a curving front portion (125) extending downward and rearward above the front face of the gutter, a concave pooling portion (118) intermediate the rear portion (117) of the gutter and the curving front portion of the cover (125). A lip portion (114) extends upward and wraps over the top segment of the gutter.

The lip portion (114) and the top segment (117) of the gutter are pressed together along their length to form an integral gutter and cover assembly (110). This is described at page 7, line 16 through page 8, line 2.

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**VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

Whether claims 8, 10-11 and 13-21 are anticipated by Knudson, U.S. Patent No. 5,845,435.

Whether claims 9, 22, 24 and 28-29 are unpatentable over Knudson, U.S. Patent No. 5,845,435 in view of Manoogian Jr., U.S. Patent No. 5,072,551.

Whether claim 12 is being unpatentable over Knudson, U.S. Patent No. 5,845,435 in view of Manoogian Jr., U.S. Patent No. 5,072,551.

Whether claims 23 and 25 are unpatentable over Knudson, U.S. Patent No. 5,845,435 in view of Manoogian Jr., U.S. Patent No. 5,072,551.



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## VII. ARGUMENT

Rejection of claims 8, 10-11 and 13-21 under 35 U.S.C. §102 (b) as being anticipated by Knudson, U.S. Patent No. 5,845,435.

Claims 8, 10-11 and 13-16.

The Office Action of May 30, 2006 stated that with regard to claim 8, 10-11, and 13-16, *Knudson* shows a seamless gutter and cover system comprising a seamless gutter formed from a first coil of material having a front face, a bottom and rear portion extending upward to a top segment, a cover system having a cover formed from a second coil of material, the cover extends over the gutter and has a debris separation portion extending above the front face of the gutter. A lip portion extends upward and wraps over the top segment of the gutter, the lip portion and the top segment of the gutter are pressed together along their length to form an integral gutter and cover assembly, the interlocking means comprising crimping the top segment of the gutter and the flange portion of the cover together to interlock the top segment of the gutter with the flange portion of the cover. The Action states that the gutter is made of a first material and the cover is made of a second material, the first material being aluminum, the gutter and cover are integrally connected without a connector member, mounting means for securing the system to the edge of the roof, the mounting means further comprising mounting hardware for securing the system to the edge of the roof, the mounting hardware extends through a hole in the gutter and cover system, the mounting system is repeatedly positioned at determined distances along the gutter and cover system.

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Applicant respectfully asserts that a close reading of the *Knudson* reference clearly shows that the *Knudson* reference has not been understood and has not been properly characterized in the Office Action. Applicant asserts that *Knudson* neither teaches nor suggests such a seamless gutter and cover system. The Office Action asserts that *Knudson* discloses crimping the top segment of the gutter and the flange portion of the cover together to interlock the top segment of the gutter with the flange portion of the cover. However, careful reading of *Knudson* reveals that the references does not teach interlocking or crimping. In fact, *Knudson* clearly teaches away from such an integral gutter and cover assembly. As recited in column 4, lines 53-59, Knudson recites:

" . . . there is shown a two-piece shielded gutter 92 mounted on support structure 13 having a roof 14. The stationary gutter shown has a semicircular bottom wall 96, a front wall 97 and a back wall 98 forming a U-shaped gutter channel with a top opening. A removable top shield 99 extends downwardly and forwardly from the upper end or top of the back wall 98."

*Knudson* clearly teaches a cover that is removable from the gutter assembly, described as removable top shield 99. Applicant asserts that the problem of joining a cover to a gutter integrally is a difficult process, and has not been accomplished by the prior art. Moreover, it is clear that *Knudson* does not teach or suggest such a system. Reading further, it can be seen that the *Knudson* patent provides further clarification that the cover is a removable cover. Referring to Figure 11 and elements 99a and 98a, *Knudson* recites at column 6, lines 42-48:

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"Referring now to FIG. 11, a modified form of separate shield could have a hook 99a at the rear end of the shield opening toward the bottom that would fit down over the upper straight end 98a of the back wall of the gutter so the rear of the shield would attach to the gutter rather than the support device. Otherwise the device 131 and mounting for the shield would be the same as shown in FIGS. 9 and 10."

FIG. 11 also shows a removable cover rather than an integral cover and gutter.

Applicant asserts that there is no teaching or suggestion in *Knudson* that the elements are crimped together. Rather, Applicant asserts that *Knudson* teaches away from the present invention as the cover must be removable. In addition to just being crimped, Applicant notes that claim 8 recites that the lip portion and the top segment of the gutter are pressed together along their length to form an integral gutter and cover assembly. Not only does *Knudson* not teach that the gutter and cover assembly are crimped together forming an integral gutter and cover assembly, but *Knudson* teaches a removable top shield that cannot be pressed to the gutter assembly along its length as recited in claim 8. Moreover, as the top shield is removable, it is not possible for the cover and gutter to be pressed together.

The present invention provides advantages that are not possible with the prior art, including *Knudson*. The seamless gutter and cover assembly provides for forming a single gutter and cover assembly on the job site from a machine without having to form separate gutters and covers that are then later connected together. Once the gutters and covers have been formed, it is difficult to join them together, even when they are assembled, as access to the long gutter and

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cover assembly is difficult, especially for portions that are not at the ends of the pieces. The present invention provides a simple and easily installable gutter and cover assembly that is not possible with the prior art. Applicant asserts that claim 8 distinguishes over *Knudson*.

Moreover, claims 10-11 and 13-16 also patentably distinguish over *Knudson* for at least the same reasons. Regarding claims 17-21, Applicant asserts that *Knudson* neither teaches nor suggests the integral gutter and cover system as discussed above with regard to claim 8, and further comprising the support member of such an integral system. The present invention as recited in claims 17-21 provides for an integrally connected gutter and cover assembly with support members that are slid into position. Applicant asserts that *Knudson* does not anticipate such a gutter and cover assembly. Applicant asserts that claims 17-21 are allowable over *Knudson* for the reasons discussed above with regard to claim 8.

Rejection of claims 9, 22, 24 and 28-29 under 35 U.S.C. §103 (a) as being unpatentable over Knudson, U.S. Patent No. 5,845,435 in view of Manoogian Jr., U.S. Patent No. 5,072,551.

Claim 9

The Office Action of May 30, 2006 stated that *Knudson* shows all the claim limitations except for the cover comprising a kinetic energy dispersion section intermediate the rear portion of the gutter and the debris separation portion of the cover. The Office Action stated that *Manoogian Jr.* discloses a kinetic energy dispersion section intermediate the rear portion of the gutter and the debris separation portion of the cover to enable the slowing of rain water so that rain water would properly drain into the gutter. The Office Action asserts that it would have

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been obvious to one having ordinary skill in the art at the time of the invention to modify *Knudson's* structure to show the cover comprising a kinetic energy dispersion section intermediate the rear portion of the gutter and the debris separation portion of the cover because it would allow for the slowing of rain water so that rain water would properly drain into the gutter as taught by *Manoogian Jr.* Applicant respectfully traverses the rejection.

As stated above, a careful reading and proper characterization of *Knudson* shows that *Knudson* does not teach or suggest the gutter and cover assembly recited in claim 8, as discussed above. Applicant respectfully asserts that *Manoogian Jr.* fails to overcome those shortcomings of *Knudson*. The combination of *Knudson* and *Manoogian Jr.* fails to teach or suggest the integral cover and gutter assembly, and fails to teach or suggest that the elements are pressed together along their length to form the integral cover and gutter assembly. *Manoogian Jr.* does not teach or suggest such structure. Moreover, *Manoogian Jr.* when combined with *Knudson* still fails to teach or suggest such structure. Applicant therefore asserts that the combination of *Knudson* and *Manoogian Jr.* fails to establish a *prima facie* case of obviousness with regard to claim 8. Applicant asserts that claims 9 also patentably distinguishes over the combination of *Knudson* and *Manoogian Jr.* for at least the same reasons.

Claims 22, 24, and 28-29

The Office Action of May 30, 2006 stated that *Knudson* shows all the claim limitations, but the Office Action fails to address all of the limitations of claim 22. Claim 22 recites a gutter having a front face, a curving front portion extending rearward and downward, a bottom and a rear portion extending upward to a top segment. Moreover, claim 22 recites an

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integral cover extending over the gutter, having a curving front portion extending downward and rearward above the front face of the gutter. Claim 22 also recites a concave pooling portion intermediate the rear portion of the gutter and the curving portion of the cover, and a lip portion extending upward and wrapping over the top segment of the gutter. Finally, claim 22 recites that the lip portion and the top segment of the gutter are pressed together along their length to form an integral gutter and cover assembly. As discussed above with regard to claim 8, *Knudson* fails to teach or suggest the recited structure. *Knudson* teaches a removable top shield and fails to disclose the lip portion and top segment pressed together along their length to form an integral gutter and cover assembly. As discussed above, not only does *Knudson* not teach or suggest such structure, but careful examination of *Knudson* reveals that it teaches a removable top shield, which teaches away from the integral assembly of the present invention. *Manoogian Jr.* fails to remedy these shortcomings of *Knudson*. Applicant asserts that claim 22 therefore patentably distinguishes over *Knudson* and *Manoogian Jr.* for at least reasons similar to those discussed above with regard to claim 8. Moreover, Applicant asserts that claims 24 and 28-29 are also allowable for at least these same reasons.

Rejection of claim 12 under 35 U.S.C. § 103(a) as being unpatentable over Knudson, U.S. Patent No. 5,845,435 in view of Manoogian Jr., U.S. Patent No. 5,072,551.

Claim 12.

The Office Action of May 30, 2006 stated that *Knudson* shows all the claim limitations except for the second material comprising copper. The Action states that it would

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have been obvious to modify *Knudson* to show that the second material comprises copper because it has been held to be within the general skill of a worker in the art. The Action asserts that aluminum and copper are well-known materials for outdoor use as they are rust resistant. Applicant respectfully traverses the rejection.

Applicant asserts that claim 8 is allowable over the combination of *Knudson* and *Manoogian Jr.* as discussed above. Applicant asserts that as claim 12 depends on claim 8, claim 12 is also allowable for at least the same reasons discussed above. Applicant asserts that claim 12 patentably distinguishes over *Knudson* in view of *Manoogian Jr.*, and requests that the rejection be withdrawn.

Rejection of claims 23 and 25 as being unpatentable over *Knudson*, U.S. Patent No. 5,845,435 in view of *Manoogian Jr.*, U.S. Patent No. 5,072,551.

Claims 23 and 25.

The Office Action of May 30, 2006 stated that *Knudson* shows all of the claim limitations of the gutter except a front face defining a K-style or square profile. The Action states that it would have been obvious to one having ordinary skill in the art at the time of the invention to modify *Knudson's* structure to show the gutter front face defining a K-style or square profile because it would have been an obvious matter of engineering design choice. Applicant respectfully traverses the rejection. Applicant asserts that claim 22 is allowable for at least the reasons discussed above. Applicant asserts that dependent claims 23 and 25 are also

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allowable for at least the same reasons. Applicant requests that the rejection of claims 23 and 25 therefore be withdrawn.



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**SUMMARY**

For the reasons discussed above and others, Applicant asserts that the claims patentably distinguish over the cited prior art and any other prior art. Applicant requests a favorable decision on the appeal, that all the Examiner's rejections be reversed, and allowance of the pending claims.

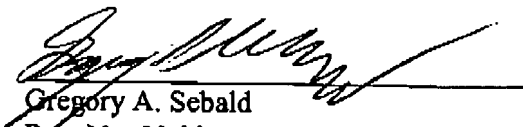
Please charge any additional fees or credit overpayment to Merchant & Gould Deposit Account No. 13-2725.

Respectfully submitted,

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Date:

5/30/07

  
Gregory A. Sebald  
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### CLAIMS APPENDIX

1-7. (Cancelled)

8. (Currently Amended) A seamless gutter and cover system comprising:

a gutter formed from a first coil of material having a front face, a bottom and a rear portion extending upward to a top segment;

a cover formed from a second coil of material, wherein the cover extends over the gutter and has a debris separation portion extending above the front face of the gutter, and a flange lip portion extending upward and wrapping over adjacent the top segment of the gutter, ~~and~~

interlocking means for coupling wherein the lip portion and the top segment of the gutter and cover are pressed together along their length to form a single unit an integral gutter and cover assembly.

9. (Original) The gutter and cover system according to claim 8, wherein the cover further comprises a kinetic energy dispersion section intermediate the rear portion of the gutter and the debris separation portion of the cover.

10. (Original) The gutter and cover system according to claim 8, wherein the interlocking means comprises crimping the top segment of the gutter and the flange portion of the cover together to interlock the top segment of the gutter with the flange portion of the cover.

11. (Original) The gutter and cover system of claim 8, wherein the gutter is made of a first material and the cover is made of a second material.

12. (Original) The gutter and cover system of claim 11, wherein the first material comprises aluminum and the second material comprises copper.

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13. (Currently Amended) The gutter and cover system of claim 8, wherein the gutter and cover are ~~attached~~ integrally connected without a connector member.
14. (Original) The gutter and cover system of claim 8, further comprising mounting means for securing the system to the edge of the roof.
15. (Original) The gutter and cover system of claim 14, wherein the mounting means further comprises mounting hardware for securing the system to the edge of the roof, wherein the mounting hardware extends through a hole in the gutter and cover system.
16. (Original) The gutter and cover system of claim 15, wherein said mounting means is repeatedly positioned at determined distances along said gutter and cover system.
17. (Original) The gutter and cover system of claim 8, further comprising an internal support member for reinforcing the gutter and cover.
18. (Currently Amended) The gutter and cover system according to claim 17, wherein the internal support member further comprises a debris separation support segment juxtaposed to an underside of the debris separation portion of the cover and having a profile with an upper edge matching the debris separation portion of the cover, and a rear portion extending downward to a front face segment.
19. (Original) The gutter and cover system described in claim 18, further comprising fixation means for securing the internal support member with respect to the gutter and cover system.
20. (Currently Amended) The system of claim 19, wherein the fixation means further comprises mounting hardware for securing the internal support member to the gutter and cover system, wherein the mounting hardware extends through a hole in the ~~debris separation portion of the cover~~ gutter and into a hole in the debris separation support segment.

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21. (Original) The system according to claim 20, wherein the internal support member is repeatedly positioned at determined distances along said gutter and cover system.

[20] 22. (Currently Amended) A seamless gutter and cover system comprising:

a gutter having a front face, a curving top front portion extending rearward and downward, a bottom and a rear portion extending upward to a top segment;

a an integral cover extending over the gutter, having a curving front portion extending downward and rearward above the front face of the gutter, a concave pooling portion intermediate the rear portion of the gutter and the curving front portion of the cover, and a ~~flange~~ lip portion extending upward and wrapping over adjacent the top segment of the gutter, and

~~interlocking means for coupling wherein the lip portion and the top segment of the gutter and cover are pressed together along their length to form a single unit~~ an integral gutter and cover assembly.

[21] 23. (Currently Amended) The system described in ~~claim 20~~ claim 22, wherein said front face defines a K-style profile.

[22] 24. (Currently Amended) The system described in ~~claim 20~~ claim 22, wherein said front face defines a continuously curved profile.

[23] 25. (Currently Amended) The system described in ~~claim 20~~ claim 22, wherein said front face defines a substantially square profile.

26-27. (Cancelled)

28. (New) The gutter and cover system according to claim 9, wherein the kinetic energy dispersion section comprises a pooling section.

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29. (New) The gutter and cover system according to claim 28, further comprising an internal support member having a pooling segment profile juxtaposed to an underside of the pooling section of the cover, and a rear portion extending downward to a front face segment.

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## **EVIDENCE APPENDIX**

### **A. OFFICE ACTIONS AND AMENDMENTS/RESPONSES**

1. Office Action mailed October 6, 2005
2. Amendment mailed March 6, 2006
3. Final Office Action mailed May 30, 2006
4. Notice of Appeal including Petition for Extension of Time mailed  
November 30, 2006

### **B. REFERENCES RELIED UPON BY THE EXAMINER**

Knudson, U.S. Patent No. 5,845,435

Manoogian Jr., U.S. Patent No. 5,072,551

### **C. REFERENCES CITED BY APPELLANTS**

Knudson, U.S. Patent No. 5,845,435

Manoogian Jr., U.S. Patent No. 5,072,551

### **D. CASES CITED IN THE BRIEF**

None.



## UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,788	10/30/2003	Michael J. Bullinger	10226.10USII ✓	1146
23552 7390 10/06/2005				
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GAS			EXAMINER	
			A. PHI DIEU TRAN	
			ART UNIT	PAPER NUMBER
			3637	

DATE MAILED: 10/06/2005

Resp of 3/PTA: January 6, 2006

Response STAT: April 6, 2006

DV

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/697,766

Applicant(s)

BULLINGER, MICHAEL J.

Examiner

Phil D. A

Art Unit

3637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
 Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 October 2003.  
 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 is/are pending in the application.  
 4a) Of the above claim(s) 1-7, 26 and 27 is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 8-25 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All b) ☐ Some \* c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 8/3/04, 10/30/03  
 4) ☐ Interview Summary (PTO-413)  
 Paper No(s)/Mail Date, \_\_\_\_\_.  
 5) ☐ Notice of Informal Patent Application (PTO-152)  
 6) ☐ Other: \_\_\_\_\_



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**DETAILED ACTION*****Claim Objections***

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 20-25 have been renumbered claims 22-27. *Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-7, drawn to method of forming a gutter and cover system, classified in class 29, subclass 897.3.
  - II. Claims 8-25, drawn to a gutter and cover system, classified in class 52, subclass 11.
  - III. Claim 26, drawn to an apparatus, classified in class 72, subclass 380.
  - IV. Claim 27, drawn to a process of making a gutter and cover, classified in class 72, subclass 334.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and IV are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the

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product as claimed can be made by another and materially process; for example, the gutter and cover being extruded separately.

3. Inventions II and III are related as apparatus and product made. The inventions in this relationship are distinct if either or both of the following can be shown: (1) that the apparatus as claimed is not an obvious apparatus for making the product and the apparatus can be used for making a different product or (2) that the product as claimed can be made by another and materially different apparatus (MPEP § 806.05(g)). In this case, the apparatus as claimed is not an obvious apparatus for making the product and the apparatus can be used for making a different product; for example, the apparatus can be used to form corrugated panels.

4. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product as claimed can be made by another and materially different process; for example, the gutter and cover can be rolled formed, manually pressed together, and then crimp together.

5. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

6. During a telephone conversation with Gregory Sebald on 9/28/05 a provisional election was made with traverse to prosecute the invention of II, claims 8-25. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-7, 26-27 are withdrawn

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from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 20-21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claimed limitations of "securing the internal support ....extends through a hole in the debris separation portion of the cover and into a hole in the debris separation support segment" is not enabled or supported by the specification. The specification and the drawings only disclose the hardware extending through the gutter and the support segment, not the support segment and the cover.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 8, 10-11, 13-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Knudson (5845435).

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Per claims 8, 10-11, 13-16, Knudson (figures 10-11) shows a gutter and cover system comprising a gutter (96) formed from a first coil of material having a front face(97), a bottom and a rear portion (98) extending upward to a top segment, a cover system (99 and part 131) formed from a second coil of material, the cover extends over the gutter and has a debris separation portion (1060 extending above the front face of the gutter, a flange portion (99a) extending upward adjacent the top segment of the gutter, interlocking means (the top of part 99a, and the part to the left of it, and part 98a) for coupling the gutter and cover together to form a single unit, the interlocking means comprising crimping the top segment of the gutter and the flange portion of the cover together to interlock the top segment of the gutter with the flange portion of the cover, the gutter is made of a first material and the cover is made of a second material, the first material being aluminum, the gutter and cover are attached without a connector member (the claims thus far have not positively claimed a connector member), mounting means for securing the system to the edge of the roof, the mounting means further comprising mounting hardware(75) for securing the system to the edge of the roof, the mounting hardware extends through a hole in the gutter and cover system.

Per claims 17-19, Knudson (figures 10-11) shows a gutter and cover system comprising a gutter (96) formed from a first coil of material having a front face(97), a bottom and a rear portion (98) extending upward to a top segment, a cover system (99) formed from a second coil of material, the cover extends over the gutter and has a debris separation portion (1060 extending above the front face of the gutter, a flange portion (99a) extending upward adjacent the top segment of the gutter, interlocking means (the top of part 99a, and the part to the left of it, and part 98a) for coupling the gutter and cover together to form a single unit, an internal support

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member (131) for reinforcing the gutter and the cover, the internal support member further comprising a debris separation support segment (108) juxtaposed to an underside of the debris separation portion of the cover, a rear portion (1410) extending downward to a front face segment, fixation means (75) for securing the internal support member with respect to the gutter and cover system, the internal support is repeatedly positioned at determined distances along the gutter and cover system, the front face defines a continuously curved profile.

*Claim Rejections - 35 USC § 103*

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 9, 22, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knudson (5845435) in view of Manoogian Jr (5072551).

Knudson shows all the claimed limitations except for the cover comprising a kinetic energy dispersion section intermediate the rear portion of the gutter and the debris separation portion of the cover.

Manoogian Jr. discloses a kinetic energy dispersion section (at 20) intermediate the rear portion of the gutter and the debris separation portion of the cover to enable the slowing of rain water so that rain water would properly drain into the gutter.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Knudson's structure to show the cover comprising a kinetic energy dispersion section intermediate the rear portion of the gutter and the debris separation portion of

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the cover because it would allow for the slowing of rain water so that rain water would properly drain into the gutter as taught by Manoogian Jr.

13. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Knudson (5845435) in view of Manoogian Jr (5072551).

Knudson shows all the claimed limitations except for the second material comprising copper.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Knudson's structure to show the second material comprising copper because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice, *In re Leshin*, 125 USPQ 416, furthermore, aluminum and copper are well known material outdoor use it is rust resistant, and are commonly used on areas exposed to the elements.

14. Claims 23, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knudson (5845435) in view of Manoogian Jr (5072551).

Knudson as modified shows all the claimed limitations except for the gutter front face defining a K-style or square profile.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Knudson's modified structure to show the gutter front face defining a K-style or square profile because it would have been an obvious matter of engineering design choice to have the face being K-style or square profile since applicant has not disclosed that the different profiles solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the front face being continuously curved.

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15. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knudson (5845435) in view of Manoogian Jr (5072551)

Knudson as modified shows all the claimed limitations except for the mounting hardware extends through a hole in the debris separation portion of the cover and into a hole in the debris separation support segment.

Manoogian Jr. further shows a mounting hardware (28) extends through a hole in the debris separation portion of the cover (the part above 18) to enable the secured mounting of the cover and gutter system.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Knudson's modified structure to show the mounting hardware extends through a hole in the debris separation portion of the cover and into a hole in the debris separation support segment because it would enable the secured fastening of the gutter and cover system to the roof structure as taught by Manoogian Jr.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art shows different gutter and cover systems.

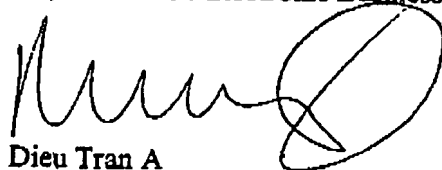
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phi D A whose telephone number is 571-272-6864. The examiner can normally be reached on Monday-Tuesday, Thursday and Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lanna Mai can be reached on 571-272-6867. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Phi Dieu Tran A

9/29/05





Date Mailed: July 30, 2004

Sheet 1 of 1



## INFORMATION DISCLOSURE STATEMENT

IN AN APPLICATION

(Use several sheets if necessary)

Docket Number:

10226.10US11

Application Number:

10/697,788

Applicant: BULLINGER

Filing Date: 10/30/2003

Group Art Unit: 1742

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
PA	2,672,832	03/23/1954	Goetz			
	5,072,551	12/17/1991	Mennogian, Jr.			
	5,189,849	03/02/1993	Collins			
	5,575,118	11/19/1996	Vahlldieck			
	5,845,435	12/08/1998	Knudson			
	6,098,344	08/08/2000	Albracht			
	6,098,345	08/08/2000	Demartini et al.			
	2002/0152692 A1	10/24/2002	Bahroos et al.			
	6,470,628 B1	10/29/2002	Walters			
	6,598,352 B2	07/29/2003	Higginbotham			

## FOREIGN PATENT DOCUMENTS

	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)


23552

PATENT TRADEMARK OFFICE

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form for next communication to the Applicant.

\*Substitute Disclosure Statement Form (PTO-1449)

Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

<b>Notice of References Cited</b>	Application/Control No. 10/697,788	Applicant(s)/Patent Under Reexamination BULLINGER, MICHAEL J.	
	Examiner Phi D. A	Art Unit 3637	Page 1 of 1

## U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-5,845,435	12-1998	Knudson, Gary A.	52/11
	B	US-5,072,551	12-1991	Manoogian, Jr., Sarkis	52/12
	C	US-2005/0028452	02-2005	Brochu, Guy	052/012
	D	US-2,672,832	03-1954	GOETZ ALFRED K	52/12
	E	US-6,470,628	10-2002	Walters, Arnold Bruce	52/12
	F	US-6,598,352	07-2003	Higginbotham, Edward A.	52/12
	G	US-6,098,345	08-2000	Demartini et al.	52/12
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

## FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N	6-307036	11-1994	JAPAN		52/11
	O	6-307035	11-1994	JAPAN		52/11
	P					
	Q					
	R					
	S					
	T					

## NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(e).)  
 Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

U.S. Patent and Trademark Office  
 PTO-892 (Rev. 01-2001)

Notice of References Cited

Part of Paper No. 092906

PAGE 35/78 \* RCVD AT 5/30/2007 7:31:38 PM [Eastern Daylight Time] \* SVR:USPTO-EFXRF-3/3 \* DNIS:2738300 \* CSID:6123329081 \* DURATION (mm-ss):21-02

MAY 30 2007

**Merchant & Gould**

An Intellectual Property Law Firm

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Minneapolis, MN 55402-2215

A Professional Corporation

**Fax Transmission** | March 6, 2006

TO:

Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

FROM: Gregory A. Sebald

OUR REF: 10226.0010US11

TELEPHONE: 612.336.4728

Total pages, including cover letter: 12PTO FAX NUMBER 1-571-273-8300

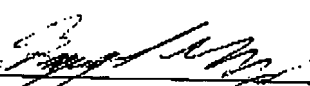
If you do NOT receive all of the pages, please telephone us at 612.332.5300, or fax us at 612.332.9081.

Title of Document Transmitted:

AMENDMENTPetition for Extension of TimeApplicant: Michael J. BULLINGER  
Serial No.: 10/697,788  
Filed: October 30, 2003  
Group Art Unit: 3637  
Our Ref. No. 10226.0010US11  
Confirmation No. 1146

Please charge Deposit Account No. 13-2725 in the amount of \$225.00 for a two month extension of time for a small entity.

Please charge any additional fees or credit overpayment to Deposit Account No. 13-2725. Please consider this a PETITION FOR EXTENSION OF TIME for a sufficient number of months to enter these papers, if appropriate.

By:   
Name: Gregory A. Sebald  
Reg. No.: 33,280

I hereby certify that this paper is being transmitted by facsimile to the U.S. Patent and Trademark Office on the date shown below.

Karen R. Nejedly  
Signature  
Date

CEN033.1007

S/N 10/697,788

MAY 30 2007

PATENTIN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Michael J. Examiner: Tran A. Phi Dieu  
BULLINGER  
Serial No.: 10/697,788 Group Art Unit: 3637  
Filed: October 30, 2003 Docket No.: 10226.0010US11  
Title: GUTTER AND COVER SYSTEM

CERTIFICATE UNDER 37 CFR 1.6(d)

I hereby certify that this paper is being transmitted by facsimile to the U.S. Patent and Trademark Office on March 6, 2006.

By:   
Name: Karen R. NejedlyPETITION FOR EXTENSION OF TIME

Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Dear Sir:

In accordance with the provisions of 37 C.F.R. §1.136(a), it is respectfully requested that a two-month extension of time be granted in which to respond to the outstanding Office Action mailed October 6, 2005, said period of response being extended from January 6, 2006 to March 6, 2006.

Please charge Deposit Account No. 13-2725 in the amount of \$225.00 to cover the required extension fee for a small entity.


**23552**

PATENT TRADEMARK OFFICE

Respectfully submitted,

MERCHANT & GOULD P.C.  
P.O. Box 2903  
Minneapolis, MN 55402-0903  
612/332-5300

Date: 3/6/06

  
Gregory A. Sebald  
Reg. No. 33,280  
GAS/km

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MAY 30 2007

S/N 10/697,788

PATENTIN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Michael J. BULLINGER Examiner: Tran A. Phi Dieu  
Serial No.: 10/697,788 Group Art Unit: 3637  
Filed: October 30, 2003 Docket No.: 10226.0010US11  
Title: GUTTER AND COVER SYSTEM

CERTIFICATE UNDER 37 CFR 1.6(d): The undersigned hereby certifies that this correspondence is being transmitted via facsimile to the United States Patent and Trademark Office on March 2, 2006.

By:   
Name: Karen K. Nejedly

AMENDMENT

Mail Stop AMENDMENT  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

In response to the Office Action mailed October 6, 2005, please amend the above-referenced application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 6 of this paper.

U.S. Patent Application Serial No. 10/697,788  
Reply to Office Action dated October 6, 2005

**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application:

**Listing of Claims:**

1-7. (Cancelled)

8. (Currently Amended) A seamless gutter and cover system comprising:

a gutter formed from a first coil of material having a front face, a bottom and a rear portion extending upward to a top segment;

a cover formed from a second coil of material, wherein the cover extends over the gutter and has a debris separation portion extending above the front face of the gutter, and a flange lip portion extending upward and wrapping over adjacent the top segment of the gutter, and

interlocking means for coupling wherein the lip portion and the top segment of the gutter and cover are pressed together along their length to form a single unit an integral gutter and cover assembly.

9. (Original) The gutter and cover system according to claim 8, wherein the cover further comprises a kinetic energy dispersion section intermediate the rear portion of the gutter and the debris separation portion of the cover.

10. (Original) The gutter and cover system according to claim 8, wherein the interlocking means comprises crimping the top segment of the gutter and the flange portion of the cover together to interlock the top segment of the gutter with the flange portion of the cover.

11. (Original) The gutter and cover system of claim 8, wherein the gutter is made of a first material and the cover is made of a second material.

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12. (Original) The gutter and cover system of claim 11, wherein the first material comprises aluminum and the second material comprises copper.
13. (Currently Amended) The gutter and cover system of claim 8, wherein the gutter and cover are ~~attached~~ integrally connected without a connector member.
14. (Original) The gutter and cover system of claim 8, further comprising mounting means for securing the system to the edge of the roof.
15. (Original) The gutter and cover system of claim 14, wherein the mounting means further comprises mounting hardware for securing the system to the edge of the roof, wherein the mounting hardware extends through a hole in the gutter and cover system.
16. (Original) The gutter and cover system of claim 15, wherein said mounting means is repeatedly positioned at determined distances along said gutter and cover system.
17. (Original) The gutter and cover system of claim 8, further comprising an internal support member for reinforcing the gutter and cover.
18. (Currently Amended) The gutter and cover system according to claim 17, wherein the internal support member further comprises a debris separation support segment juxtaposed to an underside of the debris separation portion of the cover and having a profile with an upper edge matching the debris separation portion of the cover, and a rear portion extending downward to a front face segment.
19. (Original) The gutter and cover system described in claim 18, further comprising fixation means for securing the internal support member with respect to the gutter and cover system.
20. (Currently Amended) The system of claim 19, wherein the fixation means further comprises mounting hardware for securing the internal support member to the gutter and cover



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system, wherein the mounting hardware extends through a hole in the ~~debris separation portion of the cover gutter~~ and into a hole in the debris separation support segment.

21. (Original) The system according to claim 20, wherein the internal support member is repeatedly positioned at determined distances along said gutter and cover system.

[20] 22. (Currently Amended) A seamless gutter and cover system comprising:

a gutter having a front face, a curving ~~top~~ front portion extending rearward and downward, a bottom and a rear portion extending upward to a top segment;

a an integral cover extending over the gutter, having a curving front portion extending downward and rearward above the front face of the gutter, a concave pooling portion intermediate the rear portion of the gutter and the curving front portion of the cover, and a flange lip portion extending upward and wrapping over adjacent the top segment of the gutter, and

interlocking means for coupling wherein the lip portion and the top segment of the gutter and cover are pressed together along their length to form a single unit an integral gutter and cover assembly.

[21] 23. (Currently Amended) The system described in ~~claim 20~~ claim 22, wherein said front face defines a K-style profile.

[22] 24. (Currently Amended) The system described in ~~claim 20~~ claim 22, wherein said front face defines a continuously curved profile.

[23] 25. (Currently Amended) The system described in ~~claim 20~~ claim 22, wherein said front face defines a substantially square profile.

26-27. (Cancelled)

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28. (New) The gutter and cover system according to claim 9, wherein the kinetic energy dispersion section comprises a pooling section.
29. (New) The gutter and cover system according to claim 28, further comprising an internal support member having a pooling segment profile juxtaposed to an underside of the pooling section of the cover, and a rear portion extending downward to a front face segment,

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Reply to Office Action dated October 6, 2005

**Remarks:**

Applicant has read and considered the Office Action dated October 6, 2005 and the references cited therein. Claims 8, 13, 18, 20 and 22-25 have been amended. New claims 28 and 29 have been added. Claims 1-7 and 26-27 have been cancelled without prejudice or disclaimer. Claims 8-25 and 28-29 are currently pending.

Applicant notes that claims 20-25 were misnumbered originally and have been renumbered as claims 22-27. Applicant has renumbered the claims accordingly in the present Amendment.

A Restriction Requirement was placed on the application. Previously, an election had been made by telephone to elect the Invention of Group II, claims 8-25. Applicant hereby confirms election of Invention II. Claims 1-7 and 26-27 have now been cancelled.

Claims 20-21 were rejected under 35 U.S.C. § 112 as being non-enabling. The Action stated that the specification drawings only disclosed hardware extending through the gutter and the support segment, but not the support segment and the cover. Claim 20 has been amended and recites that the hardware extends through the gutter. Applicant asserts that claim 20 is fully supported and requests withdrawal of the rejection of claims 20 and 21.

Claims 8, 10-11 and 13-19 were rejected under 35 U.S.C. § 102(b) as being anticipated by Knudson. The Action stated that Knudson shows a gutter and cover system comprising a gutter formed from a first coil of material having a front face, a bottom and a rear portion extending upward to a top segment, a cover system formed from a second coil of material, the cover extends over the gutter and has a debris separation portion extending upward adjacent the top segment of the gutter, interlocking means for coupling the gutter and the cover together to form a single unit, the interlocking means comprising crimping the top segment of the gutter with the flange of the cover together to interlock the top segment of the gutter with the flange

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Reply to Office Action dated October 6, 2005

portion of the cover. The Action also states that Knudson discloses that the gutter is made of a first material and the cover of a second material and that the gutter and cover are attached without a connector member. The Action further states that Knudson discloses mounting means for securing the system to the edge of a roof comprising mounting hardware for securing the system to the roof and extending through a hole in the gutter and cover system.

Claim 8 now recites a gutter formed from a first coil of material having a front face, a bottom and a rear portion extending upward to a top segment, a cover formed from a second coil of material, wherein the cover extends over the gutter and has a debris separation portion extending above the front face of the gutter, and a lip portion extending upward and wrapping over the top segment of the gutter. The lip portion of the cover and the top segment of the gutter are pressed together along their length to form an integral gutter and cover assembly.

Applicant asserts that Knudson neither teaches nor suggests such a seamless gutter and cover system. Applicant notes that although the Office Action asserts that Knudson discloses crimping the top segment of the gutter and the flange portion of the cover together to interlock the top segment of the gutter with the flange portion of the cover, careful reading of Knudson reveals that the reference does not teach interlocking or crimping. As recited in column 4, lines 53-59, Knudson recites, "a two piece shielded gutter 92 mounted on support structure 13 having a roof 14. A stationary gutter shown has a semi-circular bottom wall 96, a front wall 97 and a back wall 98 forming a U-shaped gutter channel with a top opening. A removable top shield 99 extends downwardly and forwardly from the upper end or top of the back wall 98" (*emphasis added*). Moreover, as the Office Action recites elements 99A and 98A as corresponding structure, it was noted that these elements are shown in Figure 11. At column 6, lines 42-48, Knudson states "Referring now to FIG. 11, a modified form of separate shield could have a hook 99a at the rear end of the shield opening toward the bottom that would fit down over the upper straight end 98a at the back wall of the gutter so the rear of the shield would attach to the gutter rather than the support device. Otherwise, the device 131 and mounting shield would be the

U.S. Patent Application Serial No. 10/697,788  
Reply to Office Action dated October 6, 2005

same as shown in FIGS. 9 and 10." Figure 11 therefore also shows a removable cover rather than an integral cover and gutter. Clearly, there is no teaching or suggesting that the elements are crimped together. Rather, the gutter and cover in Knudson are removable from one another, thereby teaching away from an integral assembly. Moreover, Knudson does not teach the lip portion of the top segment of the gutter being pressed together along their length to form an integral gutter and cover assembly as recited in claim 8. The present invention provides for a construction method with an assembly having an integral gutter and cover assembly that can be cut to length to form a seamless gutter and cover system. The simple construction can be carried out with a portable roll forming system. Where the gutter and cover are made separately as is taught by Knudson, crimping afterwards may not be possible as access to the portion to be pressed together is limited and the lengthy components are too unwieldy to pass through a roll forming device. Applicant asserts that claim 8 patentably distinguishes over Knudson and provides advantages for ease of manufacture and for improved construction that is not possible with the prior art. Applicant asserts that claim 8 and claims 10-11 and 13-19 patentably distinguish over Knudson.

Claims 9, 22 and 24 were rejected as being unpatentable over Knudson in view of Manoogian, Jr. The Office Action states that Manoogian discloses a kinetic energy dispersion section and that it would have been obvious to combine the references. Claim 9 depends from claim 8 and is believed to be allowable for the reasons stated above. Moreover, claim 22 recites structure similar to that of claim 8 and is believed to be allowable for the reasons stated above. Applicant asserts that Manoogian fails to address the shortcomings of the Knudson reference. Even if combined, Applicant asserts that the Knudson and Manoogian patents do not achieve the present invention. Applicant requests that the rejection over the combination of Knudson and Manoogian be withdrawn.

Claim 12 was rejected as being unpatentable over Knudson in view of Manoogian. The Office Action states that Manoogian teaches that the second material could be copper. Applicant

U.S. Patent Application Serial No. 10/697,788  
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asserts that claim 12 depends from claim 8, which is believed to be allowable for at least the reasons discussed above. Applicant asserts that claim 12 is allowable for at least these reasons.

Claims 23 and 25 were rejected as being unpatentable over Knudson in view of Manoogian. The Action states that Knudson shows all of the limitations except for the gutter face defining a K-style or square profile, but that it would have been obvious to combine the two. Applicant asserts that claim 22 is allowable for the reasons stated above and that claims 23 and 25 depending from claim 22 are also believed to be allowable for at least those reasons.

Claims 20-21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Knudson in view of Manoogian. The Action states that Manoogian shows mounting hardware extending through a hole in the debris separation portion of the cover and that it would have been obvious to combine the two. Applicant asserts that claim 8, from which these claims depend, is allowable for at least the reasons stated above. Applicant asserts that claims 20 and 21 are allowable for those reasons as well as others.

Claim 28 recites that the kinetic energy dispersion section comprises a pooling section. Applicant asserts that Knudson shows a curving cover portion while Manoogian shows only speed bumps, but neither teaches a pooling section. Applicant asserts that the pooling section provides for improved kinetic energy dispersion that directs more water into the gutter while separating debris. Moreover, such a profile provides for greater support. Claim 29 recites an internal support that has a pooling segment profile against an underside of the pooling section of the cover. The internal support therefore provides direct support to the pooling section of the cover so that it is not deformed. Applicant asserts that this is neither shown nor suggested by the references.

U.S. Patent Application Serial No. 10/697,788  
Reply to Office Action dated October 6, 2005

A speedy and favorable action on the merits is hereby solicited. If the Examiner feels that a telephone interview may be helpful in this matter, please contact Applicant's Representative at (612) 336-4728.



Respectfully submitted,

MERCHANT & GOULD P.C.

Dated: 3/6/06

By: 

Gregory A. Sebald  
Reg. No. 33,280  
GAS/km



# UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,788	10/30/2003	Michael J. Bullinger	10226.10USII	1146
23552	7590	05/30/2006		
<b>MERCHANT &amp; GOULD PC</b> P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903				
<b>GAS</b>				
<b>EXAMINER</b> A, PHI DIEU TRAN				
ART UNIT		PAPER NUMBER		
3637				

DATE MAILED: 05/30/2006

FR 2 Mo: July 30, 2006

FR 3 Mo/PTA: August 30, 2006

FR 6 Month: November 30, 2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Dv



**Office Action Summary**

Application No.

10/697,788

Applicant(s)

BULLINGER, MICHAEL J.

Examiner

Phi D. A.

Art Unit

3637

— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —  
 Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 March 2006.  
 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 8-25, 28 and 29 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 8-25, 28-29 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All b) ☐ Some \* c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/06)  
 Paper No(s)/Mail Date \_\_\_\_\_  
 4) ☐ Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_  
 5) ☐ Notice of Informal Patent Application (PTO-152)  
 6) ☐ Other: \_\_\_\_\_

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*Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Lines 1-2 "the interlocking means" is lacking antecedent basis.

*Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 8, 10-11, 13-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Knudson (5845435).

Per claims 8, 10-11, 13-16, Knudson (figures 10-11) shows a seamless gutter and cover system comprising a seamless gutter (96, seamless as it is made of one piece) formed from a first coil of material having a front face(97), a bottom and a rear portion (98) extending upward to a top segment, a cover system having a cover (99) formed from a second coil of material, the cover extends over the gutter and has a debris separation portion (106) extending above the front face of the gutter, a lip portion (99a) extending upward and wrapping over the top segment (98a) of the gutter, the lip portion and the top segment of the gutter are pressed together along their length to form an integral gutter and cover assembly (the part 99a appears to press fit over part 98a and

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together forming an integral part), the interlocking means comprising crimping the top segment of the gutter and the flange portion of the cover together to interlock the top segment of the gutter with the flange portion of the cover, the gutter is made of a first material and the cover is made of a second material, the first material being aluminum, the gutter and cover are integrally connected without a connector member (the claims thus far have not positively claimed a connector member, and figures 10-11 show no other connecting structures except for the mounting means which applicant later claims anyway), mounting means for securing the system to the edge of the roof, the mounting means further comprising mounting hardware(75) for securing the system to the edge of the roof, the mounting hardware extends through a hole in the gutter and cover system (the system including part 131), the mounting means is repeatedly positioned at determined distances along the gutter and cover system (figure 9).

Per claims 17-21, Knudson (figures 10-11) shows a gutter and cover system comprising a gutter (96) formed from a first coil of material having a front face(97), a bottom and a rear portion (98) extending upward to a top segment, a cover system (99) formed from a second coil of material, the cover extends over the gutter and has a debris separation portion (106) extending above the front face of the gutter, a lip portion (99a) extending upward and wrapping over the top segment of the gutter, the lip portion and the top segment of the gutter are pressed together along their length to form an integral gutter and cover assembly (the part 99a appears to press fit over part 98a and together forming an integral part), an internal support member (131) for reinforcing the gutter and the cover, the internal support member further comprising a debris separation support segment (108) juxtaposed to an underside of the debris separation portion of the cover and having a profile with an upper edge matching the debris separation portion of the

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cover (the curve of the support matches the curve of the cover), a rear portion (141) extending downward to a front face segment, fixation means (75) for securing the internal support member with respect to the gutter and cover system, the fixation means further comprising mounting hardware for securing the internal support member to the gutter and cover system, the mounting hardware (75) extends through a hole in the gutter and into a hole in the debris separation support segment (148), the internal support member is repeatedly positioned at determined distances along the gutter and cover system, the front face defines a continuously curved profile.

*Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 9, 22, 24, 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knudson (5845435) in view of Manoogian Jr (5072551).

Knudson shows all the claimed limitations including an internal support member (131) having a pooling segment profile (147) juxtaposed to an underside of the section of the cover, a rear portion (141) extending downward to a front face segment (134) except for the cover comprising a kinetic energy dispersion section intermediate the rear portion of the gutter and the debris separation portion of the cover.

Manoogian Jr. discloses a kinetic energy dispersion section (at 20) intermediate the rear portion of the gutter and the debris separation portion of the cover to enable the slowing of rain water so that rain water would properly drain into the gutter.

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It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Knudson's structure to show the cover comprising a kinetic energy dispersion section intermediate the rear portion of the gutter and the debris separation portion of the cover because it would allow for the slowing of rain water so that rain water would properly drain into the gutter as taught by Manoogian Jr.

Per claims 22, 24, 28-29 Knudson as modified shows a concave pooling portion intermediate the rear portion of the gutter and the curving front portion of the cover.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Knudson (5845435) in view of Manoogian Jr (5072551).

Knudson shows all the claimed limitations except for the second material comprising copper.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Knudson's structure to show the second material comprising copper because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice, *In re Leshin*, 125 USPQ 416, furthermore, aluminum and copper are well known material outdoor use it is rust resistant, and are commonly used on areas exposed to the elements.

6. Claims 23, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knudson (5845435) in view of Manoogian Jr (5072551).

Knudson as modified shows all the claimed limitations except for the gutter front face defining a K-style or square profile.

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It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Knudson's modified structure to show the gutter front face defining a K-style or square profile because it would have been an obvious matter of engineering design choice to have the face being K-style or square profile since applicant has not disclosed that the different profiles solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the front face being continuously curved.

*Response to Arguments*

7. Applicant's arguments filed 3/6/06 have been fully considered but they are not persuasive.

Applicant states that Knudson does not show a seamless gutter and an integral cover and gutter, and the cover and gutter not being crimped together, examiner respectfully disagrees. As set forth in the office action, the gutter is made of one piece and thus is seamless. The cover is shown pressed fit on the gutter in figure 11 and integrally attached thereof. They thereafter form an integral structure as they are attached together. With respect to crimping, Webster's dictionary: crimp-→ to pinch or press together in order to seal; something that cramps or inhibits; the definition thus reads on the structure shown by Knudson which has parts 99a and 98a press fit together and are thus cramping/inhibiting/pressing together. If applicant means to have "crimp" meaning any thing extra, applicant is encouraged to put the limitation in the claim language. The argument is thus moot.

Applicant's arguments to other claims are thus also moot.

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With respect to the pooling section, the reference Manoogian shows a pooling section between the parts 20, Knudson as modified by Manoogian shows the pooling section as claimed. The argument is thus moot.

### *Conclusion*

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phi D A whose telephone number is 571-272-6864. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lanna Mai can be reached on 571-272-6867. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Art Unit: 3637

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Phi Dieu Tran A

QA

5/20/06

LANNA MAI  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3600





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S/N 10/697,788

PATENTIN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Michael J. BULLINGER      Examiner: Phi Dieu Tran A  
Serial No.: 10/697,788      Group Art Unit: 3637  
Filed: October 30, 2003      Docket No.: 10226.0010US11  
Title: GUTTER AND COVER SYSTEM

CERTIFICATE UNDER 37 CFR 1.6(d):

I hereby certify that this paper is being transmitted by facsimile to the U.S. Patent and Trademark Office on November 30, 2006.

By: 

Name: Karen R. Nejecky

PETITION FOR EXTENSION OF TIME

Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Dear Sir:

In accordance with the provisions of 37 C.F.R. §1.136(a), it is respectfully requested that a three-month extension of time be granted in which to respond to the outstanding Office Action mailed May 30, 2006, said period of response being extended from August 30, 2006 to November 30, 2006.

Please charge Deposit Account No. 13-2725 in the amount of \$510.00 to cover the required extension fee for a small entity.


**23552**

PATENT TRADEMARK OFFICE

Respectfully submitted,

MERCHANT & GOULD P.C.  
P.O. Box 2903  
Minneapolis, MN 55402-0903  
612/332-5300

Date: 11/30/06

  
\_\_\_\_\_  
Gregory A. Sebald  
Reg. No. 33,280  
GAS/km

**Merchant & Gould**

An Intellectual Property Law Firm

Merchant & Gould P.C.  
3200 IDS Center  
80 South Eighth Street  
Minneapolis, MN 55402-2215

A Professional Corporation

**Fax Transmission** | November 30, 2006

TO:

Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450	FROM: Gregory A. Sebald  OUR REF: 10226.0010US11  TELEPHONE: 612.332.5300
--	---

Total pages, including cover letter: 3PTO FAX NUMBER 1- 571-273-8300

If you do NOT receive all of the pages, please telephone us at 612.332.5300, or fax us at 612.332.9081.

Title of Document Transmitted:

Notice of AppealPetition for Extension of Time

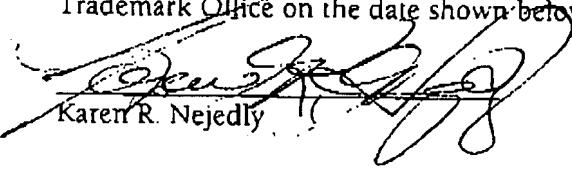
Applicant: Michael J. BULLINGER  
Serial No.: 10/697,788  
Filed: October 30, 2003  
Group Art Unit: 3637  
Our Ref. No. 10226.0010US11  
Confirmation No. 1146

Please charge Deposit Account No. 13-2725 in the amount of \$250.00 for Notice of Appeal and \$510.00 for a three (3) month extension of time for a small entity.

Please charge any additional fees or credit overpayment to Deposit Account No. 13-2725. Please consider this a PETITION FOR EXTENSION OF TIME for a sufficient number of months to enter these papers, if appropriate.

By: Name: Gregory A. SebaldReg. No.: 33,280

I hereby certify that this paper is being transmitted by facsimile to the U.S. Patent and Trademark Office on the date shown below.

  
Karen R. Nejedly  
Date

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**MAY 30 2007**

S/N 10/697,788

PATENTIN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Michael J. BULLINGER	Examiner:	Phi Dieu Tran A
Serial No.:	10/697,788	Group Art Unit:	3637
Filed:	October 30, 2003	Docket No.:	10226.0010US11
Title:	GUTTER AND COVER SYSTEM		

CERTIFICATE UNDER 37 CFR 1.6(d): The undersigned hereby certifies that this correspondence is being transmitted via facsimile to the United States Patent and Trademark Office on November 30, 2006.

By:   
Name: Karen R. Needy

**NOTICE OF APPEAL FROM THE EXAMINER**  
**TO THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Mail Stop AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Sir:

In accordance with 37 C.F.R. § 41.31, Applicants hereby appeal to the Board of Patent Appeals and Interferences from the final rejection of claims 8-25 and 28-29 of the above-identified application, as set forth in the Office Action mailed May 30, 2006.

Please charge Deposit Account No. 13-2725 in the amount of \$250.00 to cover the required fee for filing this Notice of Appeal as set forth under 37 C.F.R. § 41.20(b)(1).

Please charge any additional fees or credit any overpayment to Merchant & Gould P.C., Deposit Account No. 13-2725.


**23552**

PATENT TRADEMARK OFFICE

Respectfully submitted,

MERCHANT & GOULD P.C.  
P.O. Box 2903  
Minneapolis, MN 55402-0903  
612/332-5300

Date: 11/30/06

  
Gregory A. Sebald  
Reg. No. 33,280  
GAS/krm



US005845435A

# United States Patent [19]

## Knudson

[11] Patent Number: 5,845,435  
 [45] Date of Patent: Dec. 8, 1998

### [54] FASTENING SUPPORT DEVICES AND SYSTEMS FOR SHIELDED GUTTERS

[76] Inventor: Gary A. Knudson, 30401 Heavenly Cl., Evergreen, Colo. 80439

4,876,827 10/1989 Williams ..... 52/12  
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### FOREIGN PATENT DOCUMENTS

2608157 9/1977 Germany ..... 24/295

[21] Appl. No.: 924,678

[22] Filed: Sep. 5, 1997

### Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 410,742, Mar. 27, 1995, abandoned.

[51] Int. Cl.<sup>6</sup> ..... E04D 13/00

[52] U.S. Cl. .... 52/11; 52/13; 52/96; 248/48.1

[58] Field of Search ..... 52/11, 12, 15,  
 52/16, 96, 60, 94; 248/48.1, 48.2, 221.4;  
 24/295

### [56] References Cited

#### U.S. PATENT DOCUMENTS

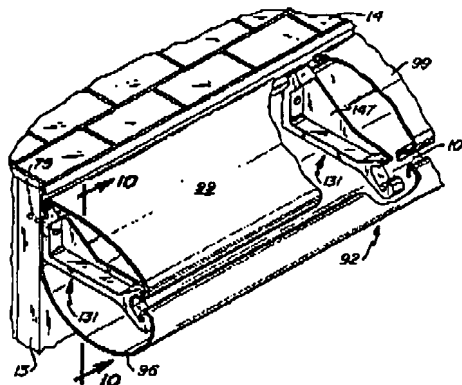
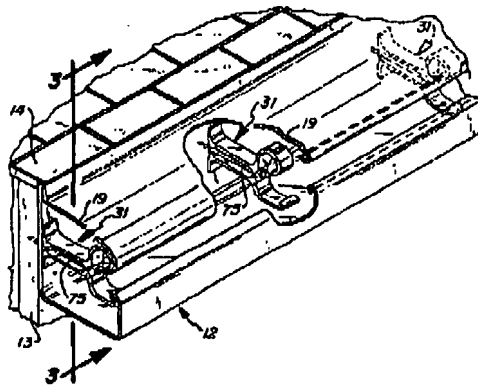
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 4,241,548 12/1980 Rowe ..... 52/11  
 4,630,338 12/1986 Osterland ..... 24/295 X  
 4,757,649 7/1988 Vohldieck .

Primary Examiner—Lanna Mai  
 Attorney, Agent, or Firm—Ansel W. Lewis, Jr.

### [57] ABSTRACT

A fastening support device and system particularly suited for shielded gutters is disclosed. The device has upper and lower support arm portions spaced a fixed distance apart and shaped to fit under and nest inside complementary shaped sections of the gutter to hold the front free end portions of the gutter at the same elevation and maintain a substantially uniform gap in the gutter. A base portion connected to the arm portions abuts against the back wall of the gutter and a threaded fastener extends between the arm portions and through the base portion and back wall of the gutter to fasten the device to a support structure. A fastening support device for a two-piece shielded gutter allows the shield to be formed separate from the gutter and readily connect to and be detached from the gutter channel.

26 Claims, 3 Drawing Sheets



U.S. Patent

Dec. 8, 1998

Sheet 1 of 3

5,845,435

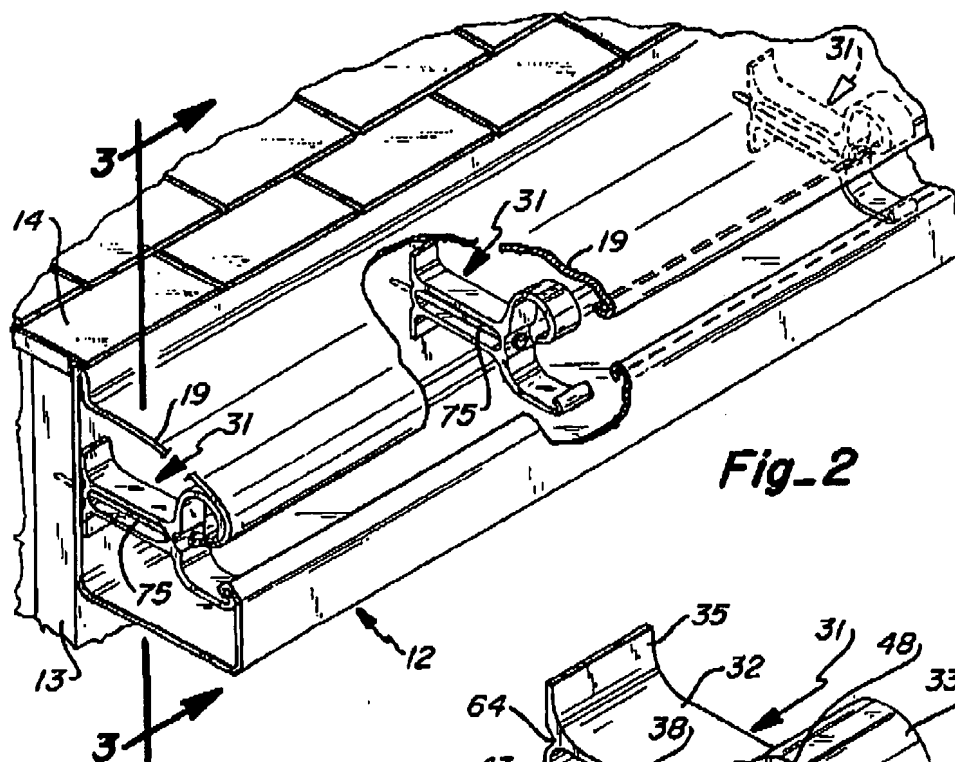


Fig-2

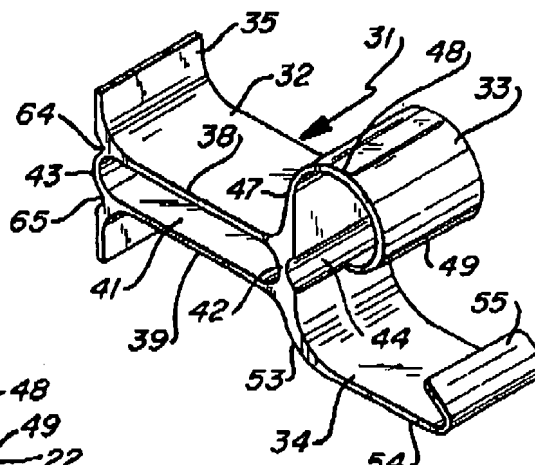


Fig-1

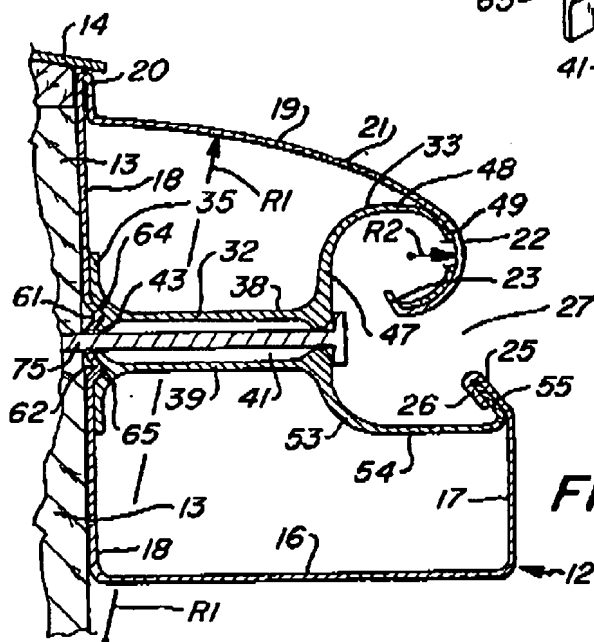


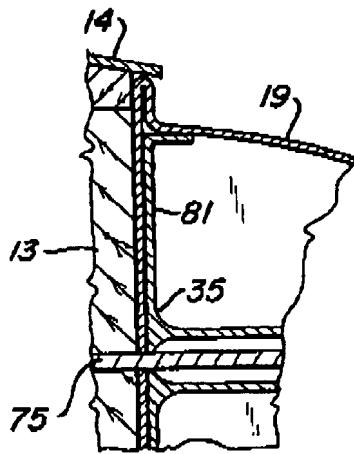
Fig-3

U.S. Patent

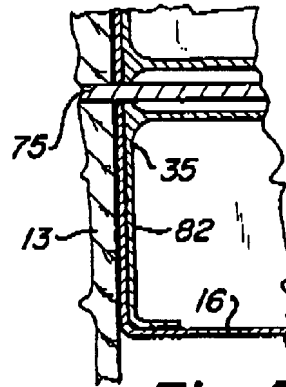
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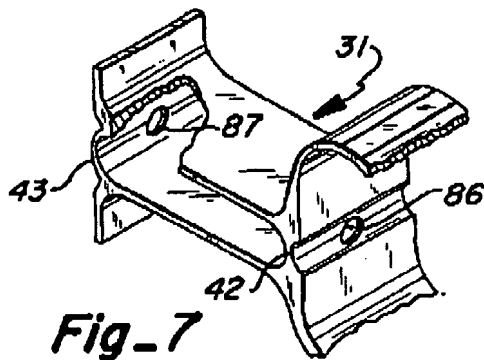
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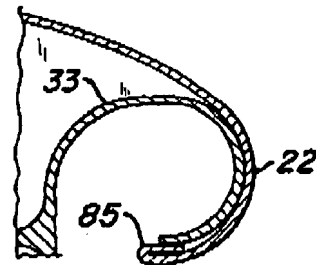
**Fig\_4**



**Fig\_5**



**Fig\_7**



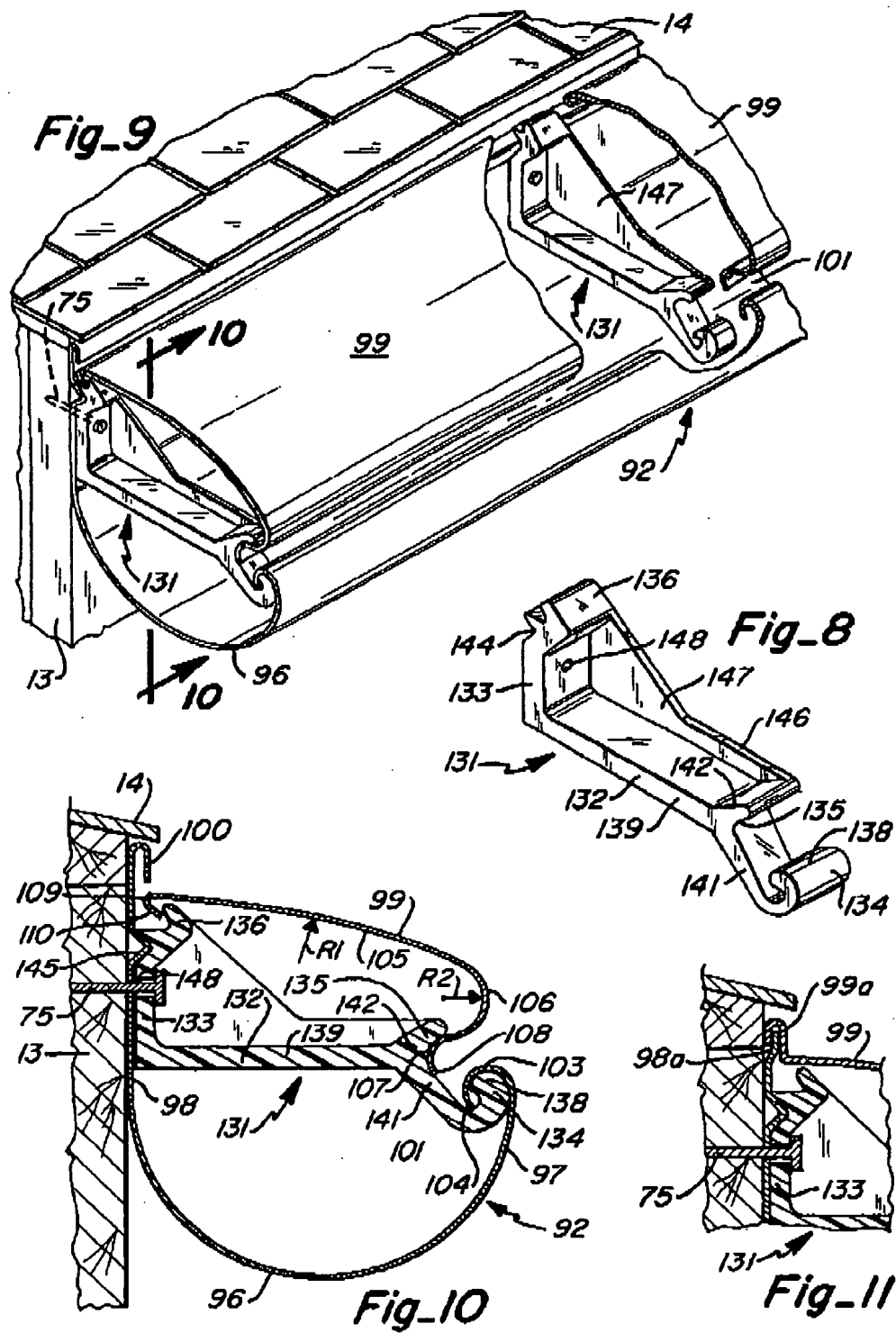
**Fig\_6**

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# FASTENING SUPPORT DEVICES AND SYSTEMS FOR SHIELDED GUTTERS

This is a continuation-in-part of application Ser. No. 8/410,742 filed Mar. 27, 1995, now abandoned.

## TECHNICAL FIELD

This invention generally relates to gutters for collecting run-off water from roofs and more particularly to a fastening support device and system for shielded gutters.

## BACKGROUND ART

In U.S. Pat. No. 4,757,649 there is disclosed a shielded gutter with a top shield arranged to minimize the collection of debris and leaves inside the gutter. This shielded gutter has a spacer tube that extends from the back wall of the gutter to a front portion of the top shield and a fastener extends through a front portion of the top shield, the spacer tube, the back wall of the gutter and into a support structure to fasten the gutter thereto.

Williams U.S. Pat. No. 4,876,827 and Faulkner U.S. Pat. No. 5,388,377 disclose a hanger device that has a forward end portion that fits inside the top of the front wall of the gutter to support the front wall of the gutter. These patents do not have an upper support for the end of the shield that is integral with the lower support.

Goetz U.S. Pat. No. 2,672,832 discloses a removable cover forming a shield for a gutter that removably couples at the rear into the top wall of the gutter. This device uses a nail fastener that extends through the gutter and a separate nail fastener that extends through the cover.

## DISCLOSURE OF THE INVENTION

A fastening support device for shielded gutters disclosed has an intermediate body portion, an upper support arm portion extending forwardly of the intermediate body portion that extends under and fits inside a free front end portion of a top shield, a lower support arm portion extending forwardly of the intermediate body portion that extends under and fits inside an inverted, inwardly inclined hook at the top of a front wall of the gutter. A rear base portion rearwardly of the intermediate body portion butts against the back wall of the gutter. A fastener extends through the intermediate body portion, base portion, and back wall of the gutter and into a support structure. A plurality of the devices at spaced intervals along the inside of the gutter form a fastening support system for the gutter.

A fastening support device for a two-piece shielded gutter has an additional coupling portion at the rear of the shield and device which allows the shield to be formed separately and be readily attached to and detached from the gutter.

## BRIEF DESCRIPTION OF THE DRAWINGS

Details of this invention are described in connection with the accompanying drawings which like parts bear similar reference numerals in which:

FIG. 1 is a front perspective view of a fastening support device for gutters embodying features of the present invention.

FIG. 2 is a perspective view of a fastening support system embodying features of the present invention using three of the devices shown in FIG. 1 and portions broken away to show interior construction.

FIG. 3 is a sectional view taken along line 3—3 of FIG. 2.

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FIG. 4 is a fragmentary sectional view of a modified form of fastening support device with an upper locating extension.

FIG. 5 is a fragmentary sectional view of a modified form of fastening support device with a lower locating extension.

FIG. 6 is a fragmentary sectional view showing a gutter with a closed hem.

FIG. 7 is a fragmentary perspective view of a modified form of fastening support device with apertures in the intermediate body portion.

FIG. 8 is a front perspective view of another embodiment of a fastening support device for two-piece shielded gutters embodying features of the present invention.

FIG. 9 is a perspective view of a fastening support system embodying features of the present invention using two of the devices shown in FIG. 8 with portions broken away to show interior construction.

FIG. 10 is a sectional view taken along line 10—10 of FIG. 9.

FIG. 11 is a schematic side elevation view of a modified fastening support device and modified two-piece gutter embodying features of the present invention.

## DETAILED DESCRIPTION

Referring now to FIGS. 1–3 of the drawings there is shown a shielded gutter 12 mounted on a support structure 13 typically a fascia board having a roof 14. The shielded gutter 12 shown has a bottom wall 16, a front wall 17, and a back wall 18 forming a U-shaped channel or trough. A top shield 19 extends forwardly and downwardly away from the top of the back wall 18. A back-folded top section 20 connects the top of the back wall with the rear end of the top shield 19. The top shield 19 has a curved top section 21 formed along one radius R1 and a free front end portion 22 formed along another radius R2 through an arc of about 180 degrees and terminates in a rearwardly and upwardly extending end section 23 forming an open hem. The front wall 17 has a free top end portion 25 in the form of a backturned hook that inclines rearwardly from the front wall 17 with a back fold that terminates in a downturned end section 26. The inverted U-shaped hook in the free top end portion 25 is shown as inclined inwardly and rearwardly at an angle of about 45 degrees to the vertical. The downturned end section 26 may extend only to a vertical position forming a more open hook for a more easy insertion of the end section 25 of the device into the upper end of the front wall rather than folded past the vertical to press against section 25 as shown in FIG. 3.

The lower extremity of the front end portion 22 and the upper extremity of the free top end portion 25 define a longitudinal front opening or gap 27 along the gutter which provides access into the inside of the gutter 12. The free front end portion 22 of the shield is rearwardly of the free top end portion 25 of the front wall so that water falling on the top shield will fall into the gutter via the gap 27.

Three fastening support devices 31 embodying features of the present invention are shown mounted at spaced intervals along the inside of gutter 12 to provide a fastening support system for the gutter 12. Each fastening support device 31 shown includes an intermediate body portion 32, an upper support arm portion 33 and a lower support arm portion 34 with portions 33 and 34 extending forwardly from the front end of the intermediate body portion 32. Arm portions 33 and 34 are spaced a selected fixed distance apart. Body portion 32 and upper support arm portion 33 and lower



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support arm portion 34 shown are an elongated rigid support body which when anchored at the rear to the back wall provide a cantilever-type support for the shield and a rear base portion 35 extends transverse to the rear end of the intermediate body portion 32 and bears against the back wall 18 of the gutter 12. The device 31 shown may be made as an integral body of extruded aluminum, extruded plastic or injection molded plastic. The width of the device 31 shown preferably is about 0.5 to 1.0 inch and preferably about 0.75 inch.

The intermediate body portion 32 is an essentially hollow body having spaced upper and lower wall members 38 and 39 defining a longitudinal passage 41 closed at the ends with relatively thin web-like opposed front and rear weakened end walls 42 and 43. A fastener 75 described hereinafter will readily penetrate walls 42 and 43 when fastening forces such as hammer blows are applied to the head of the fastener. A front recess 44 is shown in the front wall to assist in locating the pointed end of the fastener so the fastener 75 penetrates and extends into and through the passage 41. The intermediate body portion typically is at least more than half the width of the gutter so as to extend beyond the back wall 18 more than half way into the gutter so that the pointed end of the fastener starts toward the front of the gutter rather than at the rear. The recess 44 forms a target area for the pointed end of the nail or screw fastener. Further, the intermediate body portion 32 is located relatively close to the front wall 17 and is between and aligned with the gap 27 so that the installer can insert the fastener 75 straight through the gap and against the front end wall of the intermediate body portion 32 of the fastener.

The upper support arm portion 33 has an upstanding curved rear section 47 extending up and forwardly from the front of the intermediate body portion 32, a top section 48 extending forwardly of the rear section 47 and a rearwardly opening curved front section 49 extending through an arc of about 180 degrees extending forwardly, down and rearwardly of the top section 48. The front section 49 is sized and shaped to nest in and bear against an inside surface of the free front end portion 22 of the top shield.

The top and front sections 48 and 49 of the upper support arm serve as what is herein referred to as a coupling portion at a front upper end portion of the rigid support body and more specifically are a semicircular section.

The front section 49 of the shield serves as what is herein referred to as a coupling portion at a bottom front end portion of the shield and more specifically is a semicircular section.

The semi-circular section of the device is received in and surrounded by the semi-circular section of the shield and they have mating surfaces arranged to interfit with one another so that when the device is placed within the gutter the device holds the front bottom end portion of the shield against movement.

The lower support arm portion 34 has a depending curved rear section 53 extending down and forwardly from the front of the intermediate bottom portion, a bottom section 54 extending forwardly of the rear section and an upstanding front section 55 that extends upwardly and rearwardly and at an angle from the front end of the bottom section 54. The angle shown is about 45 degrees to the vertical. The front section 55 is sized and shaped to nest in and bear against an inside surface of the hooked top or upper end portion 25. The upstanding front section 55 of the lower support arm portion 34 serve as what is herein referred to as a coupling portion at a front lower end portion of the rigid support body and more specifically is a male terminal section.

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The hook-shaped upper end portion 25 of the front wall 17 serves as what is herein referred to as a coupling portion at an upper end portion of the front wall and more specifically is a female section.

This male terminal section 55 is received in and surrounded by the hook-shaped upper end portion 25 and they have nesting surfaces arranged to interfit with one another when the device is placed in the gutter to hold the upper end portion of the front wall against movement.

Each device 31 is typically set apart at 24 inch centers in correspond with the spacing between the studs. From the foregoing it is clear the device 31 holds the free front bottom end portion 29 of the shield and the top end portion 25 of the front wall of the gutter against forward, rearward, and up and down movement and in this way holds the gap 27 at a uniform width throughout the full length of the gutter.

The back wall 18 of the gutter is provided with a pair of spaced V-shaped projections 61 and 62 above and below the fastener 75 that extend inside the gutter to line up and fit in upper and lower indentations 64 and 65. The projections 61 and 62 of the back wall nest in the indentations 64 and 65 in the base so as to locate the base and the intermediate body portion 32 at a particular location with respect to the back wall of the gutter so as to locate the recess between the gap 27 so the fastener 75 may extend straight through the gap.

To install the device 31 each is slid through the end of the gutter to selected positions of a fastener 75 such as a nail or screw with a head at one end extends through the passage 41 and penetrates the support structure 13 adjacent the roof so as to secure the device 31 and gutter 12 to the support structure. The rigidity of the spaced support arms 33 and 34 maintain a substantially fixed or uniform spacing and elevation position for the opposed portions of the gutter forming the gap.

Referring now to FIG. 4 a modified form of device 31 removes the indentations 64 and 65 and projections 61 and 62 and utilizes a top end locating extension 81 on the top of the base 35 that extends up and forwardly at the end to bear against the inside surface of the top shield thereby locating the device inside the gutter. In FIG. 5 there is shown a bottom end locating extension 82 that extends down and forwardly and bears against the bottom wall 16 of the gutter to serve as a locator means for the device inside the gutter. It is understood that a further modification would be to provide both top and bottom locating extensions 81 and 82 on the base portion 35. In FIG. 6 there is shown a modified form of gutter having a front section that terminates in a backturned end section 85 forming a closed hem. A modified form of intermediate body portion shown in FIG. 7 is provided with aligned holes or apertures 86 and 87 in the front end wall and back rear end wall 43 through which the fastener may be inserted.

Referring now to FIGS. 8-10 there is shown a two-piece shielded gutter 92 mounted on support structure 13 having a roof 14. The stationary gutter shown has a semicircular bottom wall 96, a front wall 97 and a back wall 98 forming a U-shaped gutter channel with a top opening. A removable top shield 99 extends downwardly and forwardly from the upper end or top of the back wall 98. The front bottom edge of the shield and the upper end portion of the front wall 97 form an opening or gap 101 extending along the front of the gutter through which water will run into the gutter channel and leaves and debris are prevented by the shield 99 from collecting in the gutter. The free front end portion or forward extremity of the shield 99 is rearwardly of the free upper end portion of the front wall 97 so water falling on shield 99 will fall into the gutter via gap 101.

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The upper end of the back wall 98 has a top bend that extends forwardly and downwardly to form a top hook 100 that opens toward the bottom. A coupling portion 103 is provided at the upper end of the front wall 97 of the gutter. Coupling portion 103 extends upwardly, rearwardly, downwardly and forwardly from the upper end of the front wall through an arc of beyond 180 degrees to provide a curved hook opening toward the bottom with a down turned and front turned terminal section 104.

The top shield 99 is made from a flat sheet metal and shaped preferably by roll forming to have a convexly curved top portion 105 that extends forwardly and downwardly along a larger radius R1, a convexly curved front portion 106 formed along a second radius R2 and a front coupling portion 107 that is provided by a concavely curved front end portion that terminates in a front bottom edge 108. The top shield 99 has a rear coupling portion 109 that is provided by making a downturned bend at the rear end of the shield to provide a downwardly and forwardly extending rear hook that opens toward the front and has a terminal section 110.

Two fastening support devices 131 are shown mounted at spaced intervals along the inside of the gutter 92. Each fastening support device 131 shown is made as a rigid, one-piece, integral body having a rigid, elongated, main support body 132, a mounting base 133 at the rear end of the support body, a rigid coupling portion 134 at the bottom of the front lower end of the main support body, a rigid coupling portion 135 at the top of the front end of the main support body 132 and a rigid coupling portion 136 at the top of the mounting base 133. More particularly, the main support body 132 has a horizontal portion 139, a lower front inclined support arm portion 141 extending downwardly and forwardly from the front of said horizontal portion 139 and an upper front inclined support arm portion 142 extending upwardly and forwardly from the front of the horizontal portion 139. The main support body 132 is formed with a thin, web-like, horizontal rib section 146 and an inclined ramp rib section 147 which serves as a guide for installing the shield 99 as described hereinafter and adds structural strength to the device 131.

The mounting base 133 has an inwardly extending V-shaped detent 144 in the rear surface that fits over an inwardly extending V-shaped detent 145 in the back wall 98 which serves as a means to locate the mounting base 133 at a selected position on the back wall 98 when the device is inserted into the gutter. A hole or aperture 148 is provided in the mounting base through which the fastener 75 extends.

The coupling portion 134 at the front lower end portion of the main support body 132 interfits with the previously described coupling portion 103 at the upper end portion of the gutter front wall 97. These coupling portions 103 and 134 interfit with one another when the device is placed within the gutter and support the front wall against movement. Coupling portion 134 is in the form of a hook that opens at an angle toward the back and top along the axis of the inclined support arm portion 141 and has a terminal section 138 that extends rearwardly and upwardly generally parallel to support arm portion 141.

The rigid coupling portion 135 at the front upper end of the main support body interfits with the coupling portion 107 at the front bottom end portion of the shield. Coupling portion 135 is in the form of a hook with the end of support arm portion 141 forming a terminal section of the hook. Coupling portions 103 and 134 interfit with one another when the device 131 is placed in the gutter and fastened by fastener 75. Coupling portion 136 at the rear end of the

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mounting base interfits with the coupling portion 109 at the rear of the shield to support the rear end portion of the shield against movement. Coupling portion 135 at the front of the device and coupling portion 107 at the front of the shield interfit to support the front of the shield against movement. The coupling portions 107, 135 at the front of the shield and the coupling portions 109, 136 at the rear of the shield removably interfit to permit the shield to be readily removed from the gutter and reattached to the gutter as required.

The interfitting coupling portions on the device and gutter above described may be further characterized as substantially in the form of hooks. Each hook has a socket and a backturned male terminal section. The sockets of the interfitting hooks open in substantially oppositely facing directions and each terminal section slides into and fits within an associated socket. The male terminal section may be of the thickness of the member or may be curved or enlarged to have a shape that is complimentary with the shape of the associated concave socket. The pair of opposed, interfitting hooks may be a tight fitting or a loose fitting arrangement in the sockets as required to enable assembly and disassembly of the removable shield and provide the necessary support for the gutter.

To install each gutter 92, a fastening support device 131 and gutter 92 are first attached to the roof support structure 13 which is typically the fascia board in a conventional manner. The devices 131 are fastened to the fascia board at spaced intervals such as two feet centers by a fastener 75 such as a nail or screw that extends through the device, through the back wall 98 of the gutter and into building support structure 131. The top shield 99 is then placed over the top opening of the gutter with the coupling portion 107 hooked into the coupling portion 135 and the coupling portion 109 hooked into the coupling portion 136. Because the shield can flex or expand along its length the coupling portion 107 may be slid up along the ramp section 147 and popped into coupling portion 136 due to the flexibility of the material. For removal of the shield either of the coupling portions 107 or 109 of the shield can be popped out of the associated coupling portions of the device.

Referring now to FIG. 11, a modified form of separate shield could have a hook 99a at the rear end of the shield opening toward the bottom that would fit down over the upper straight end 98a of the back wall of the gutter so the rear of the shield would attach to the gutter rather than the support device. Otherwise the device 131 and mounting for the shield would be the same as shown in FIGS. 9 and 10.

From the foregoing description it is clear that a fastening support device and system embodying features of the present invention can be easily made, is easy to install and once in place holds the gutter against movement, sagging and maintains a uniform gap through which the water passes while at the same time preventing debris from entering the inside of the gutter.

Although the present invention has been described with a certain degree of particularity, it is understood that the present disclosure has been made by way of example and that changes in details of structure may be made without departing from the spirit thereof.

What is claimed is:

1. A fastening support device for fitting inside and supporting an elongated shielded gutter having a bottom wall, front wall, back wall defining a gutter channel with a top opening and top shield extending forwardly and downwardly from the top of the back wall with a gap between the shield and front wall, said device comprising:

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a main support body,  
 a mounting base at the rear of said support body having means for receiving a fastener to anchor the rear of said support body to said back wall to provide a cantilever-type support for said shield and said front wall,  
 a first coupling portion rigidly attached at the front lower end portion of said support body for interfitting with a gutter coupling portion at an upper end portion of said front wall to support said front wall against movement, and  
 a second coupling portion rigidly attached at a front upper end portion of said support body for interfitting with a shield coupling portion at a front bottom end portion of said shield to support said shield against movement, said first and second coupling portions being rigid and at a fixed distance from one another to maintain said gap at a substantially uniform dimension.

2. A device as set forth in claim 1 wherein said main support body has an elongated horizontal portion, an inclined lower support arm portion extending downwardly and forwardly from the front of said horizontal portion, said first coupling portion being carried by said lower support arm portion and an inclined upper support arm portion extending upwardly and forwardly from the front of said horizontal portion, said second coupling portion being carried by said upper support arm portion.

3. A device as set forth in claim 2 wherein said horizontal portion has spaced upper and lower members defining a longitudinal passage through which said fastener extends, said horizontal portion having relatively thin, weakened, opposed front and rear end walls across the ends of said passage through which the fastener will readily penetrate when fastening forces are applied to the fastener, said front end wall having a recess in a front surface to provide a target area for receiving a pointed end of said fastener.

4. A device as set forth in claim 3 wherein there are holes in each of said front and rear walls through which said fastener will pass.

5. A device as set forth in claim 2 wherein said lower support arm portion has a depending curved rear section extending downwardly and forwardly from the front of said horizontal portion and a bottom section extending forwardly of said rear section, said first coupling portion being a front section extending up and rearwardly at an incline to said bottom section.

6. A device as set forth in claim 2 wherein said upper support arm portion has an upstanding curved rear section extending up and forwardly from the front end of said horizontal portion and a top section extending forwardly of said rear section, said second coupling portion means being a rearwardly opening curved front section extending through an arc of about 180 degrees.

7. A device as set forth in claim 1 wherein said mounting base has a first locator means for engaging a second locator means on said back wall to locate the mounting base at a selected vertical position on said back wall.

8. A device as set forth in claim 1 wherein said mounting base has a recessed target area for receiving a pointed end of said fastener.

9. A device as set forth in claim 1 wherein said mounting base has two vertically spaced indentations in a back face above and below said fastener adapted to fit over complementary shaped projections on the inside of said back wall to locate said mounting base at a selected vertical position on said back wall.

10. A device as set forth in claim 1 wherein said mounting base has a top extension that abuts against the underside of

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said top shield for locating said base portion at a selected vertical position on said back wall.

11. A device as set forth in claim 1 wherein said mounting base has a bottom extension that abuts against the bottom wall of the gutter for locating said base portion at a selected vertical position on said back wall.

12. A device as set forth in claim 1 wherein said main support body and said first and second coupling portion are made as an integral one-piece rigid body.

13. A device as set forth in claim 1 wherein said first coupling portion is substantially in the form of a hook having a rearwardly opening concave socket and a back-turned terminal section that extends upwardly and rearwardly at a selected angle to the vertical.

14. A device as set forth in claim 1 wherein said second coupling portion is substantially in the form of a hook having a rearwardly opening socket of a semi-circular shape and a backturned terminal section.

15. A device as set forth in claim 1 including a third coupling portion at an upper end of said mounting base for interfitting with a second shield coupling portion at the rear of said shield to support said shield against movement, said second and third coupling portion and said first and second shield coupling portions being releasable from one another to enable said shield to be readily attached to and removed from said gutter channel.

16. A fastening support device for fitting inside and supporting an elongated shielded gutter having bottom wall, front wall, back wall defining a gutter channel with a top opening and a top shield extending forwardly and downwardly from the top of the back wall with a gap between the top shield and the front wall, said device comprising:

- a rigid main support body having spaced upper and lower members defining a longitudinal passage and having weakened, relatively thin, opposed front and rear end walls across the ends of said passage through which a fastener will readily penetrate when fastening forces are applied to the fastener, said front wall having a recess in a front surface to provide a target area for receiving the pointed end of said fastener,
- a lower support arm portion rigidly attached to and extending forwardly of said main support body portion, said lower support arm portion having a depending curved rear section extending forwardly from the front of said main support body and a bottom section extending forwardly of said rear section,
- a rigid first coupling portion for interfitting with a gutter coupling portion means and rigidly attached at the upper end portion of said front wall to support said front wall against movement, said first coupling means being a front section extending up and rearwardly at an incline to said bottom section,
- an upper support arm portion rigidly attached to and extending forwardly of said main support body, said upper support arm portion having a rearwardly opening, upstanding curved rear section extending up and forwardly from the front end of said main support body and a top section extending forwardly of said rear section,
- a rigid second coupling portion for interfitting with a shield coupling portion means and rigidly attached at a bottom front end portion of said shield to support said shield against movement, said second coupling portion being a curved front section extending forwardly of said top section through an arc of about 180 degrees, said first and second coupling portions being rigid and

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at a fixed distance from one another to maintain said gap at a substantially uniform dimension, and

a mounting base extending transverse to and at the rear of said main support body for bearing against a back wall of the gutter, said main support body and mounting base having means for receiving a fastener that extends into a support structure for securing the gutter to the support structure to anchor the rear of said support body to said back wall to provide a cantilever-type support for said shield and said front wall.

17. A fastening support device for fitting inside and supporting an elongated shielded gutter having a bottom wall, front wall, back wall defining a gutter channel with a top opening and top shield extending forwardly and downwardly from the top of the back wall with a gap between the shield and front wall, said device comprising:

a main support body,

a mounting base at the rear of said main support body having means for receiving a fastener to anchor the rear of said support body to said back wall to provide a cantilever-type support for said shield and front wall,

a first coupling portion rigidly attached at the front lower end portion of said support body for interfiting with a gutter coupling portion at an upper end portion of said front wall to support said front wall against movement,

a second coupling portion rigidly attached at a front upper end portion of said main support body for interfiting with a first shield coupling portion at a front bottom end portion of said shield to support said shield against movement,

said first and second coupling portion being rigid and at a fixed distance from one another to maintain said gap at a substantially uniform dimension, and

a third coupling portion at an upper end of said mounting base for interfiting with a second shield coupling portion at the rear of said shield to support said shield against movement,

said second and third coupling portion and said first and second shield coupling portions being releasable from one another to enable said shield to be readily attached to and removed from said gutter channel.

18. The combination of an elongated shielded gutter having a bottom wall, a front wall having a front wall coupling portion at an upper end portion of the front wall, a back wall defining a gutter channel with a top opening and a top shield extending forwardly and downwardly from the top of the back wall with a gap between the shield and the front wall, said shield having a shield coupling portion at a front bottom end portion of the shield and a fastening support device inside and supporting said gutter, said device including:

an elongated horizontal main support body,

an elongated vertical mounting base at the rear of said support body having means for receiving a fastener to anchor the rear of said support body to said back wall to provide a cantilever-type support for said shield and said front wall,

a first coupling portion rigidly attached at the front lower end portion of said support body interfiting with said front wall coupling portion to support said front wall against movement and maintain said gap of a substantially uniform dimension,

and a second coupling portion rigidly attached at the front upper end portion of said support body interfiting with said shield coupling portion to support said shield

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against movement and maintain said gap at a substantially uniform dimension.

19. The combination as set forth in claim 18 wherein a front wall of said main support body is located at a forward position past the middle of the gutter to facilitate insertion of a point of said fastener into said main support body.

20. A device as set forth in claim 18 wherein said first coupling portion and said front wall coupling portion are each substantially in the form of a hook with each said hook having a concave socket and a backturned terminal section, said sockets of said interfiting hooks opening in substantially oppositely facing directions and each terminal section fitting within an associated socket.

21. A device as set forth in claim 18 wherein said second coupling portion and said shield coupling portion are substantially in the form of a hook with each said hook having a concave socket and a backturned terminal section, said sockets of said interfiting hooks opening in substantially opposite facing directions and each terminal section fitting within an associated socket.

22. The combination in a fastening support system of an elongated shielded gutter having a bottom wall, a front wall having a front wall coupling portion at an upper end portion of the front wall, a back wall defining a gutter channel with a top opening and a top shield extending forwardly and downwardly from the top of the back wall with a gap between the shield and the front wall, said shield having a shield coupling portion at a front bottom end portion of the shield and a plurality of fastening support devices at selected spaced distances inside and supporting said gutter, each said device including:

an elongated horizontal main support body,

an elongated vertical mounting base at the rear of said support body having means for receiving a fastener to anchor the rear of said support body to said back wall to provide a cantilever-type support for said shield and said front wall,

a first coupling portion rigidly attached at the front lower end portion of said support body interfiting said front wall coupling portion to support said front wall against movement, and

a second coupling portion rigidly attached at the front upper end portion of said support body interfiting with said shield coupling portion to support said shield against movement,

said first and second coupling portion of said devices being rigid and at a selected fixed distance apart to maintain a substantially uniform gap throughout the length of said gutter.

23. The combination of an elongated shielded gutter having a bottom wall, a front wall having a front wall coupling portion at an upper end portion of the front wall, a back wall defining a gutter channel with a top opening and a top shield extending forwardly and downwardly between the front wall and the back wall with a gap between the front wall and the back wall, said shield having a first shield coupling portion at a front bottom end portion of the shield and a second shield coupling portion at the rear of said shield and a fastening support device inside and supporting said gutter, device including:

a main support body,

a mounting base at the rear of said support body having means for receiving a fastener to anchor the rear of said support body to said back wall to provide a cantilever-type support for said shield and said front wall,

a first coupling portion rigidly attached at the front lower end portion of said support body interfiting said front

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wall coupling portion to support said front wall against movement and maintain a substantially uniform gap, and

a second coupling portion rigidly attached at the front upper end portion of said support body interfitting with said shield coupling portion to support said shield against movement and maintain a substantially uniform gap,

a third coupling portion at an upper end of said mounting base for interfitting with a second shield coupling portion at the rear of said shield to support said shield against movement,

said first and second coupling portions being rigid and at a fixed distance from one another to maintain said gap at a substantially uniform dimension,

said second and third coupling portion and said first and second shield coupling portions being releasable from one another to enable said shield to be readily attached to and removed from said gutter channel.

24. A device as set forth in claim 23 wherein said third coupling portion and said second shield coupling portion are each substantially in the form of a hook with said hook having a concave socket and a backturned terminal section, said sockets of said interfitting hooks opening in substantially oppositely facing directions and each terminal section fitting within an associated socket.

25. A device as set forth in claim 23 wherein said main support body, mounting base, first coupling portion means, second coupling portion, and third coupling portion are made as an integral one-piece rigid body.

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26. A fastening support device for fitting inside and supporting an elongated shielded gutter having a bottom wall, front wall, back wall defining a gutter channel with a top opening and top shield extending forwardly and downwardly from the top of the back wall with a gap between the shield and front wall, said device comprising:

a main support body,

a mounting base at the rear of said support body adapted to receive a fastener to anchor the rear of said support body to said back wall to provide a cantilever-type support for said shield and said front wall,

a first coupling portion means at the front lower end portion of said support body for interfitting with a gutter coupling portion means at an upper end portion of said front wall to support said front wall against movement, and

a second coupling portion means at a front upper end portion of said support body for interfitting with a shield coupling portion means at a front bottom end portion of said shield to support said shield against movement,

said first and second coupling portion means being a fixed distance from one another to maintain said gap at a substantially uniform dimension.

said main support body being formed with a thin web-like horizontal rib section and an inclined rib section that serves as a guide for installing said shield and adds structural strength to said main support body.

\* \* \* \* \*

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : 5,845,435  
DATED : December 8, 1998  
INVENTOR(S) : Gary A. Knudson

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

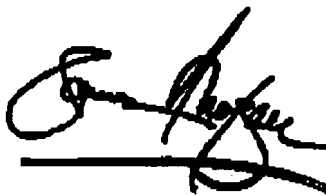
Title page

Item [63], **Related U.S. Application Data**, should appear as follows:

— continuation of PCT/US96/0131 filed February 6, 1996 which is a continuation - in - part of serial no. 410,742, March 27, 1995 abandoned. --

Signed and Sealed this

Eighteenth Day of November, 2003



JAMES E. ROGAN  
*Director of the United States Patent and Trademark Office*

# United States Patent [19] Manoogian, Jr.

[11] Patent Number: 5,072,551  
[45] Date of Patent: Dec. 17, 1991

## [54] GUTTER GUARD

[76] Inventor: Sarkis Manoogian, Jr., 8366  
Fairview Rd., Elkins Park, Pa. 19117

[21] Appl. No.: 644,494

[22] Filed: Jan. 23, 1991

[51] Int. Cl.<sup>3</sup> ..... E04D 13/00

[52] U.S. Cl. .... 52/12; 210/474;  
210/232

[58] Field of Search ..... 52/12; 210/474, 232,  
210/477

[56]

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Primary Examiner—David A. Scherbel

Assistant Examiner—Lan Mai

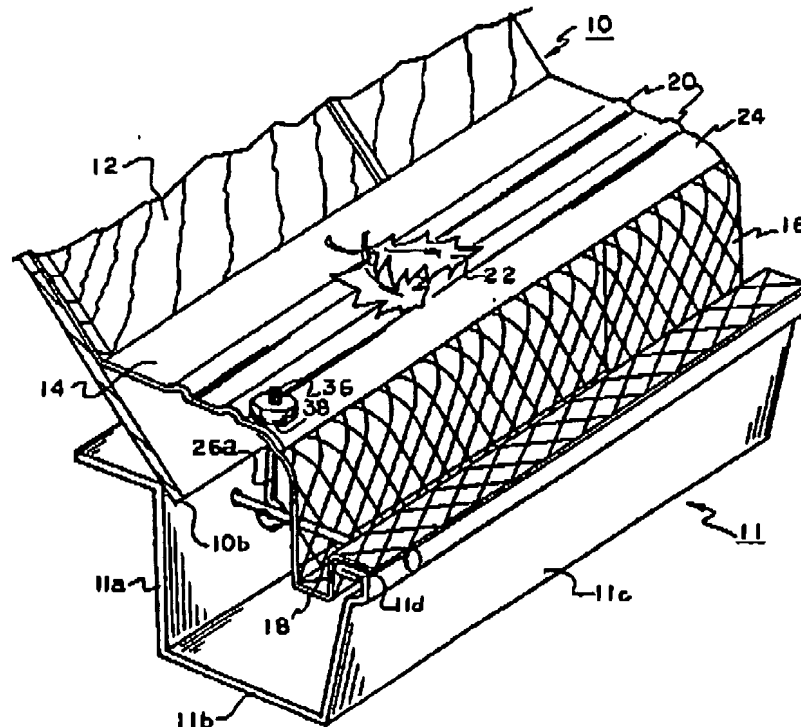
Attorney, Agent, or Firm—David J. Johns

[57]

## ABSTRACT

The present invention is an apparatus for covering traditionally mounted rain gutters. It is comprised of a roof attached shield and an arcuate screen attached to the gutter. In the preferred embodiment, a narrow trough is provided at the lower edge of the screen to accumulate excess water. The apparatus acts to separate water from debris, directing water from the roof into the gutter while encouraging the debris either to be immediately shed from the roof or to be collected and readily dried and removed from the trough.

19 Claims, 2 Drawing Sheets



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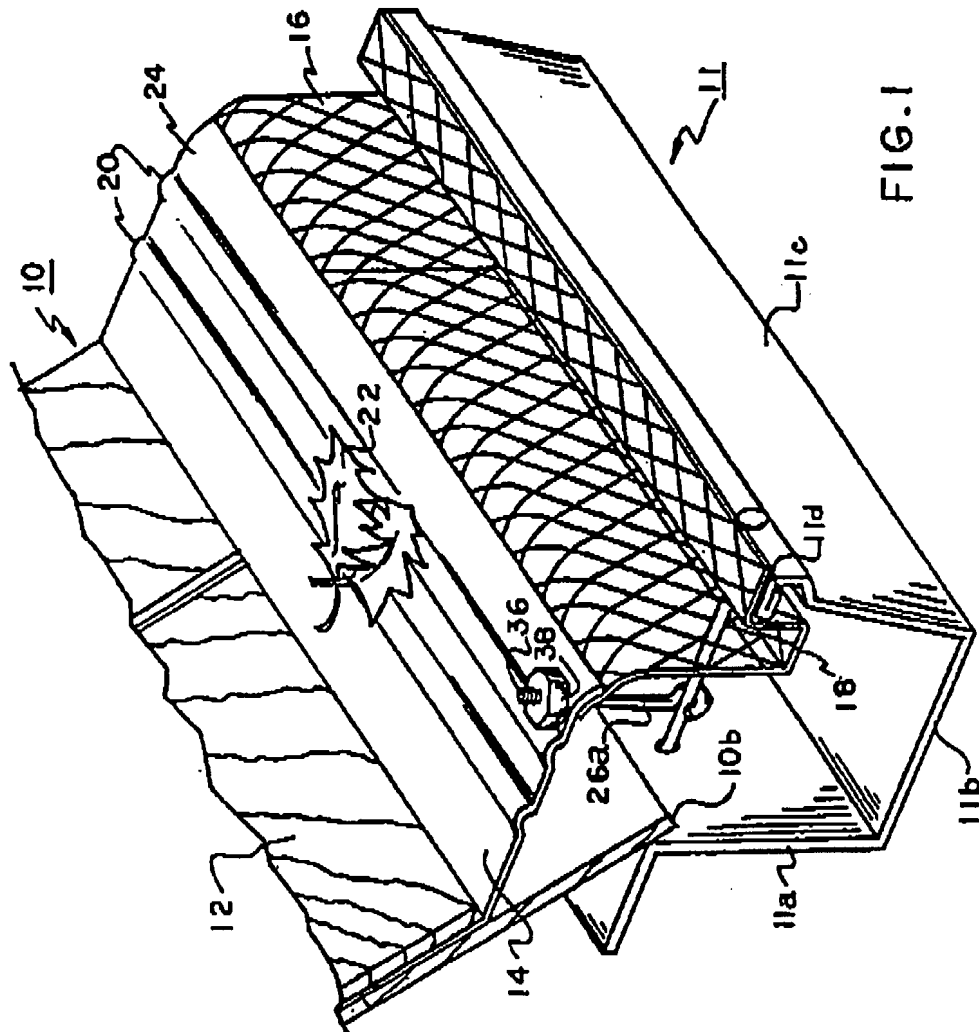


FIG. 1

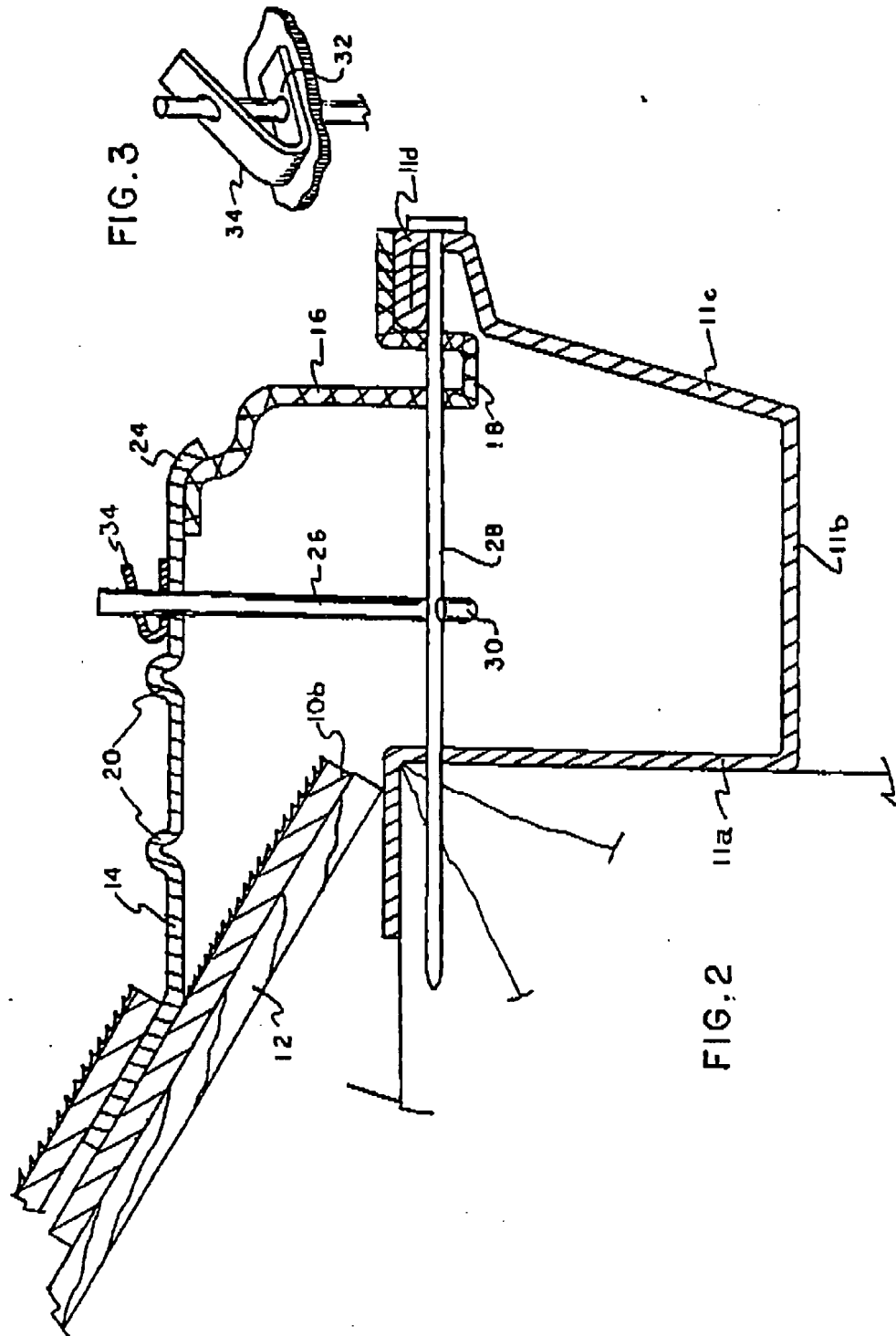


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## GUTTER GUARD

## BACKGROUND OF THE INVENTION

## 1. Field of the Invention

The present invention relates to apparatus for covering rain gutters, directing rain water from a sloping building roof into the gutter while protecting the gutter from accumulation of leaves and debris.

## 2. Description of the Prior Art.

Rain gutters are customarily provided adjacent to a sloping roof of a building. Typically they are comprised of a trough shaped horizontal section running along the edge of the roof and a vertical downpipe. Common problems associated with rain gutters are that leaves and debris pile up and clog them, and that water traveling down a sloping roof might gather enough momentum to overcome surface adhesion force and flow over the outer edge of the gutter and down the building wall instead of into the gutter.

Presently, the debris accumulation problem has been attempted to be solved by a variety of means. A number of patents, such as U.S. Pat. Nos. 2,219,953, 4,353,356, 4,644,704, and 4,907,381, attempt to solve this problem by covering the gutter with a screen or a mesh guard. These devices are in wide-spread use today, due in no small part to their relatively low price and ease in installation. Unfortunately this approach has proven to be less than acceptable since leaves and debris continues to pile up on the screen surface thus blocking access of water to the gutter.

Another approach to attempt to separate debris from water is addressed in a number of patents which employ the surface tension of the water along a solid arcuate member to direct only water into the gutter. Devices of this nature are disclosed in U.S. Pat. Nos. 4,404,775, 4,607,465 and 4,866,890. One of the primary problems created by deflector-type gutter guards are that they are usually bulky and are often difficult to install. Generally, these devices require the gutter to be replaced, or repositioned or modified to accommodate the curve of the arcuate member. These devices are also deficient in that their water carrying capacity is limited, depending in large part on the radius of the arcuate member, which often results in overflow in heavy rain storms. Finally, leaves continue to be a problem by sticking to the solid deflector surfaces, lessening surface adhesion force and again leading to the gutter overflow problems, and by being inadequately screened from the gutter, especially as the arc of the gutter is increased to increase the water carrying capacity.

Accordingly, it is a primary object of the present invention to provide a gutter guard which effectively separates leaves and other debris from rainwater entering a gutter, while requiring minimum maintenance.

It is a further object of the present invention to provide such a gutter guard which is relatively inexpensive to manufacture and which may be readily installed on existing gutters without modification.

It is an additional object of the present invention to provide such a gutter guard which employs an arcuate surface to separate debris, but includes means to assure that water is always directed into the gutter even in heavy rain storms.

These and other objects of the present invention will become evident upon review of the following description of the present invention.

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## SUMMARY OF THE INVENTION

The present invention provides an apparatus for covering rain gutters. It comprises a shield attached to a pitched roof, providing a surface of a lesser incline than that of the roof, and an arcuate screen attached to the lower edge of the shield. The radius of the screen is great enough to cause the separation of debris from water, but not so great that the screen extends beyond the front wall of the gutter. The lower edge of the screen forms a trough shaped lip that attaches to the front wall of the gutter.

In operation, rain water flows off the roof onto the shield, and then into the gutter through the arcuate screen. Leaves and debris are prevented from accumulating on the screen by its arcuate shape and are blown off the roof either immediately upon separating from the water, or after accumulating in the trough shaped lip and being dried. Overflow in excessively heavy rains is avoided by the extra water carrying and straining capacity of the trough in the lower portion of the screen.

The angle formed between the shield and the roof permits the apparatus to be installed on a conventionally mounted gutter without the need of reinstalling the gutter lower down the building wall. Employing both roof and gutter anchoring means, the present invention may be readily installed on any commercially available gutter.

## DESCRIPTION OF THE DRAWINGS

The operation of the present invention should become apparent from the following description when considered in conjunction with the accompanying drawings, in which:

FIG. 1 is a perspective view of an embodiment of the present invention;

FIG. 2 is a cross-sectional view of an embodiment of the present invention; and

FIG. 3 is an enlarged perspective view of a spring clip and lanyard shown in FIG. 2.

## DETAILED DESCRIPTION OF THE INVENTION

Referring to FIG. 1, the apparatus 10 of the present invention is shown in an assembly with a conventional gutter 11 installed directly below an edge 10b of a sloping roof 12. As is known, the gutter 11 comprises a back wall 11a, a bottom surface 11b, front wall 11c, and a top edge 11d.

The present invention comprises a shield portion 14, attached to the roof 12, and an arcuate screen 16, terminating in trough 18 attached to the gutter 11. The shield 14 provides a surface of lesser incline than that of the roof 12, thus decreasing the velocity of water coming from the roof and preventing it from flowing over the edge of the gutter 11 instead of into it. In the illustrated preferred embodiment of the present invention, the velocity of water may be decreased even further by flow control means 20, such as texturing of the surface of the shield 14, to provide further braking friction for the water exiting the roof. The flow control means illustrated comprise speed bumps 20, molded or welded into the surface of the shield 14.

In order to decrease the speed of the water exiting the gutter to the greatest degree possible, it is desirable that the slope of the shield 14 be as close to horizontal as possible. However, it should be appreciated that stand-

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ing water should be avoided and that the shield and the flow control means 20 thereon should be oriented so that water will readily drained therefrom. This may be accomplished by any convenient manner, such as providing a slight slope to the shield 14, providing regular channels through the speed bumps 20, and/or providing periodic drain holes in the shield which will permit standing water to flow through to the roof 12 underneath the shield and into the gutter 11.

As can be seen in FIGS. 1 and 2, the arcuate screen 16 is attached at its upper most edge to the lower edge of the shield 14. The arc of the screen 16 is such that the trough 18 of the screen is positioned behind the front wall 11c of the gutter 11. When debris 22, such as a leaf or seed, is swept down the shield 14, the screen 16 segregates rain water from the debris 22 through the known surface tension of the water which will cause it to adhere to the arc of the screen 16 and enter the gutter 11 through the screen 16 either in the arc or in the trough 18. As is known, debris 22 will tend not to adhere to an arcuate surface and will either continue travelling tangentially to the arc over the front wall 11c of the gutter 11 or, to a much lesser degree, to accumulate in the trough 18 at the lowermost edge of the screen 16 and adjacent to the front wall of the gutter 11.

The trough 18 should be constructed with a narrow enough width that any leaves collected therein will be forced into a vertical position, which will permit them to be dried and subsequently blown off the roof or easily removed from the trough 18. In this regard, it is believed that the trough 18 should be of a width of approximately 1 to 5 cms. It should be understood that a wider trough 18 has greater water carrying capacity, but also provides a larger area to trap debris 22 and is less effective at drying debris 22 trapped therein.

The water collection capacity of the present invention may be further enhanced by providing an arcuate lip 24 at the lower end of the shield 14. This lip 24 serves to further direct the water downward into the screen 16 and to provide a further arc which assists in the separation of the debris 22 from the water.

As is shown in FIGS. 2 and 3, the apparatus 10 may be fastened to the gutter 11 by attaching one or more lanyards 26 to conventional studs 28 used to anchor the gutter 11 in place. In the preferred embodiment shown in FIG. 2, the lanyard 26 is attached to the stud 28 by a hook 30, which engages the stud 28. The lanyard 26 then is passed up through an opening 32 in the shield 14. The lanyard 26 may then be held in place through any conventional means, including a spring clip 34 or a lock ring (not shown). In this manner, the lanyard 26 may be pulled up tight and then held in place to provide a snug fit between the apparatus 10 and the gutter 11.

Another embodiment of the fastening means is shown in FIG. 1. The lanyard 26a in that embodiment has a threaded end 36 which may be held in place with a nut 38. The nut 38 may be tightened to hold the lanyard snugly in place. Other means of fastening the apparatus 10 to the gutter 11 include attaching the shield 14 to the roof 12 with nails, screws, staples or other known means, and/or attaching the screen 16 to the front wall 11c of the gutter 11 by clips or threaded attachments.

It should be appreciated that the apparatus 10 of the present invention may be constructed from any suitable material. In the preferred embodiment, the screen 16 and the shield 14 are fabricated from a rust-proof metal alloy or weather-resistant plastic. For ease in manufacture, it is preferred that the shield 14 and screen 16 be

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constructed from a single unit, such as through the use of plastic or aluminum on galvanized steel. Since the shape of the arc of the screen 16 must be maintained for best operation of the present invention, it is particularly desirable that a material be employed which will resist any serious distortion of the curve. This may be accomplished through a rigid screen material and/or the use of rigid braces affixed to the screen to maintain its shape. The screen 16 should have a mesh density of at least 4 holes per square inch, and preferably a density of 6 to 12 holes per square inch.

The advantages of the present invention are manifold. First, the use of an arcuate surface which also permits water to enter the gutter 11 throughout the length of the arc provides the separation advantages of previous arc-deflectors without the space requirement of a full semi-circular arc. As is shown, this permits the present invention to be employed with conventional gutters without the need to move or modify the gutters. Another advantage over other available arc-deflectors is that the existence of a trough 18 at the base of the screen 16 provides means to assure that water will not simply overflow the gutter when the quantity and/or velocity of the water exceeds the capacity of the arc to redirect the water.

Although particular embodiments of the present invention are disclosed herein, it is not intended to limit the invention to such a disclosure and changes and modifications may be incorporated and embodied within the scope of the following claims.

What is claimed is:

1. An apparatus for covering a traditionally mounted roof gutter, the gutter attached directly adjacent to and below an edge of a roof, to prevent the accumulation of leaves and debris in the gutter, the gutter providing a conduit for the run-off of water through the combination of a back wall, a bottom surface, a front wall, and a top edge at the upper most end of the front wall, which apparatus comprises:

a shield which is attached to a pitched roof in a position spaced above and behind the roof's edge, the shield providing a surface of lesser incline than that of the roof so to low the velocity of water leaving the roof;

an arcuate screen portion attached at one end to the shield adjacent to its lowermost edge and at the other end to the front wall of the gutter, the screen having a radius which does not extend beyond a plane drawn vertically from the front wall of the gutter,

the arc of the screen being sufficient to direct water leaving the shield downward into the gutter, the water entering the gutter through the screen, while allowing leaves and debris to be shed over the front wall of the gutter; and

wherein the screen provides a trough at its lowermost edge behind the front wall of the gutter and extending below then top edge of the gutter to collect and strain water which fails to enter the gutter through the arc of the screen, the trough being of a cross-sectional width which is narrow enough the any leaves which may become trapped therein will be held in a substantially vertical position to promote their drying, while being of a cross-sectional width great enough that leaves and debris trapped therein may be easily removed.

2. The apparatus of claim 1 wherein an arcuate lip is provided at the edge of the shield attached to the

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screen, the arc of the lip being sufficient to direct water leaving the shield downward into the gutter through the screen.

3. The apparatus of claim 1 wherein the shield is provided with a surface texture which assists in decreasing the velocity of the water leaving the roof.

4. The apparatus of claim 3 wherein the surface texture includes ridges oriented substantially perpendicular to the flow of the water from the roof.

5. The apparatus of claim 1 wherein means are included to anchor the apparatus in place.

6. The apparatus of claim 5 wherein the means to anchor the apparatus in place includes a lanyard which attaches between the apparatus and a conventional stud used to anchor a gutter in place.

7. The apparatus of claim 6 wherein the lanyard attaches to the stud intermediate its ends, and means are included to attach the lanyard adjustably to the shield.

8. The apparatus of claim 7 wherein the means to attach the lanyard adjustably to the shield comprises an adjustable locking clip adapted to fit around the lanyard and hold it in place;

a hole in the shield through which the lanyard may be passed;

the combination of the clip and the shield serving to retain on the lanyard and to assist in retaining the apparatus against the gutter.

9. The apparatus of claim 5 wherein the means to anchor the apparatus in place includes affixing the shield of the roof.

10. The apparatus of claim 9 wherein the shield is affixed to the roof by nails passing through the shield into the roof.

11. The apparatus of claim 1 wherein the incline of the shield is substantially level.

12. The apparatus of claim 1 wherein the screen is provided with a mesh of a density of 4 to 12 holes per square inch.

13. An apparatus for covering a traditionally mounted roof gutter, the gutter attached directly adjacent to and below an edge of a roof, to prevent the accumulation of leaves and debris in the gutter, the gutter providing a conduit for the run-off of water through the combination of a back wall, a bottom surface, and a front wall, and the gutter including a top edge at the upper most end of its front wall, which apparatus comprises:

a shield which is attached to a roof in a position spaced above and behind the roof's edge, the shield providing a surface of lesser incline than that of the

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roof so to slow the velocity of water leaving the roof;

an arcuate lip at the lowermost edge of the shield; an arcuate screen portion attached to the shield adjacent to the lip at one end and to the front wall of the gutter at the other end, the screen having a radius which does not extend beyond a plane drawn vertically from the front wall of the gutter; the arc of the lip and the arc of the screen each being sufficient to direct water leaving the shield downward into the gutter, the water entering the gutter through the screen;

the screen providing a trough at its lowermost edge positioned behind the front wall of the gutter and which extends below the top edge of the gutter to collect and strain water into the gutter which fails to enter the gutter through the arc of the screen, the trough being of a cross-sectional width which is narrow enough that any leaves which may become trapped therein will be held in a substantially vertical position, which will promote their drying, while being of a cross-sectional width great enough to provide ease in removing leaves trapped therein.

14. The apparatus of claim 13 wherein the shield is provided with surface texture which assists in decreasing the velocity of the water leaving the roof.

15. The apparatus of claim 14 wherein the surface texture includes ridges oriented substantially perpendicular to the flow of the water from the roof.

16. The apparatus of claim 13 wherein the apparatus is anchored in place by a lanyard which attaches between the shield and a conventional stud used to anchor a gutter in place.

17. The apparatus of claim 16 wherein the lanyard is attached adjustably to the shield by providing a threaded end on the lanyard which passes through the shield, and a nut which attaches to the threaded end of the lanyard to hold it in place.

18. The apparatus of claim 16 wherein the lanyard is adjustably attached to the shield by an adjustable locking clip adapted to fit around the lanyard and hold it in place; a hole in the shield through which the lanyard may be passed;

the combination of the clip and the shield serving to retain tension on the lanyard and to assist in retaining the apparatus against the gutter.

19. The apparatus of claim 13 wherein the apparatus is anchored in place by nailing the shield to the roof.

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UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : 5,072,551

DATED : December 17, 1991

INVENTOR(S) : Sarkis Manoogian, Jr.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 4 line 61 "the" should be --that--.

Signed and Sealed this  
Ninth Day of March, 1993

*Attest:*

STEPHEN G. KUNIN

*Attesting Officer*

*Acting Commissioner of Patents and Trademarks*

U.S. Patent Application Serial No. 10/697,788  
Appellant's Brief on Appeal

**RELATED PROCEEDINGS APPENDIX**

None.